

Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: <https://orca.cardiff.ac.uk/id/eprint/101301/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Ali, Faraz, Cueva, A.C., Vyas, J., Atwan, A.A., Salek, M.S., Finlay, Andrew
ORCID: <https://orcid.org/0000-0003-2143-1646> and Piguët, Vincent 2017. A systematic review of the use of quality-of-life instruments in randomised controlled trials of psoriasis. *British Journal of Dermatology* 176 (3) , pp. 577-593. 10.1111/bjd.14788 file

Publishers page: <http://dx.doi.org/10.1111/bjd.14788>
<<http://dx.doi.org/10.1111/bjd.14788>>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies.

See

<http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



Title Page

Title: A systematic review of the use of quality of life instruments in randomised controlled trials of psoriasis

FM Ali¹, AC Cueva^{1,2}, J Vyas¹, AA Atwan¹, MS Salek^{3,4}, AY Finlay^{1*}, V Piguet^{1*}

¹Department of Dermatology and Academic Wound Healing, Division of Infection and Immunity, School of Medicine, Cardiff University, Cardiff, UK

² Centro de la Piel, Quito, Ecuador

³School of Life and Medical Sciences, University of Hertfordshire, Hatfield, UK

⁴Institute for Medicines Development, Cardiff, UK.

Running head: Systematic review on the use of QoL Instruments in RCTs of psoriasis

*Correspondence:

- Prof V. Piguet, Department of Dermatology, Division of Infection and Immunity, School of Medicine, Cardiff University, 3rd Floor Glamorgan House, Heath Park, Cardiff CF14 4XN, UK
email: piguety@cardiff.ac.uk, tel: 02920 744721
- Prof A.Y. Finlay, Department of Dermatology, Division of Infection and Immunity, School of Medicine, Cardiff University, 3rd Floor Glamorgan House, Heath Park, Cardiff CF14 4XN, UK email: FinlayAY@cardiff.ac.uk

Funding: none

Conflicts of Interest

AYF is joint copyright owner of the DLQI and Cardiff University receives some income from the use of the DLQI. AYF has had paid consultancies or advisory boards with Novartis, Napp Pharmaceuticals, Pfizer, Sanofi, and Galderma. VP has received educational and/or research grants from Abbvie, Cellgene, Novartis, J&J.

SS has received educational and/or research grants from Sanofi, Novartis, BMS, Pfizer & Sevier.

FA, AC, JV, AA declare no conflicts of interest.

What's already known about this topic?

- Psoriasis significantly impacts quality of life (QoL) in patients.
- Generic, skin-specific and disease-specific instruments are used in psoriasis interventional studies.
- In psoriasis randomized controlled trials (RCTs), biologics are the most researched interventions that report QoL.

What does this study add?

- The most commonly used QoL instruments in psoriasis RCTs are the DLQI, SF-36 & EQ-5D.

- There is an increasing use of QoL instruments in RCTs in psoriasis.
- Minimal clinically important difference of QoL measure scores is under-reported
- There is inconsistent reporting of QoL data and a need for guidelines when reporting.

Keywords: Psoriasis, systematic review, quality of life, treatment, DLQI

Manuscript word count: 2445 (excluding abstract)

Manuscript table count: 1

Manuscript figure count: 4

ORCID Numbers:

Faraz Ali: 0000-0002-4184-2023

Andrea Cueva: 000-0002-6260-370X

Jui Vyas: 0000-0003-2839-2651

Sam Salek: 0000-0002-4612-5699

Andrew Finlay: 0000-0003-2143-1646

Vincent Piguet: 0000-0001-6079-4517

Abstract

Background

Planners of interventional studies in psoriasis face the dilemma of selecting suitable quality of life (QoL) measures. Systematic reviews (SR) have the potential of identifying psychometrically sound measures in a given therapeutic area, whilst guiding the development of practice guidelines.

Objectives

The aim of this SR was to generate evidence of the use of QoL instruments in randomised controlled trials (RCTs) for interventions in psoriasis.

Methods

The methodology followed PRISMA guidelines. Six databases were searched with 388 search terms. Abstracts of articles were reviewed independently by two assessors, a third adjudicator resolved any opinion differences. Risk of bias was assessed using the *JADAD scale*.

Results

Of 3646 screened publications, 99 articles (100 trials) met eligibility criteria for inclusion, describing research on 33,215 subjects. 33 trials tested topical therapy, 18 systemic, 39 biologics, 9 phototherapy and 10 tested other interventions.

The Dermatology Life Quality Index (DLQI) was the most commonly used QoL instrument (number of studies=83, 83%), followed by the Short Form-36 (SF-36) (31, 31%), EuroQoL (EQ-5D) (15, 15%), Psoriasis Disability Index (PDI) (14, 14%) and Skindex (5, 5%). There was widespread inconsistency in the way that QoL data was reported. Of the 100 trials identified, 37 reported Minimal Clinically Important Difference (MCID); 32 were for DLQI, 10 for SF-36 and six for EQ-5D.

Conclusions

QoL measurement is increasingly being reported in RCTs of psoriasis. Formal guidelines are needed for assessment and publishing of QoL data. Researchers should consider whether MCID information is available, and development of MCID data should be encouraged.

Introduction

From the psoriasis patient's perspective, quality of life (QoL) improvement is as important as improvement in clinical signs¹. Health-related QoL (HRQoL) instruments are increasingly used as outcome measures²⁻⁵ in assessing interventions^{6,7}. Types of HRQoL instruments used include generic, speciality-specific and disease-specific; specific tools are perceived as more relevant and thus preferred by patients⁸.

Previous reviews have examined the impact of psoriasis interventions on QoL⁹⁻¹². De Korte et al.⁹ reviewed QoL data with clinical and demographic correlations. Kitchen et al.¹³ carried out a systematic review (SR) of patient-reported outcome measures and evidence of their validation in psoriasis. These reviews underscored the value of QoL measurement in psoriasis. However we need to understand how QoL has been reported in previous trials; a comprehensive review is needed of the use of QoL instruments in randomized controlled trials (RCTs) for interventions in psoriasis.

The aims of this SR were to identify RCTs of therapies in psoriasis that have assessed QoL and to evaluate patterns of utility and reporting of QoL data. This SR should reveal how QoL instruments have been used across therapeutic trials, including consideration of the minimal clinically important difference (MCID), frequency of measurement and sensitivity to change. The review may be useful for those who wish to understand the patterns of use in interventional trials for psoriasis.

Materials and Methods

Data sources

We searched six computerized bibliographical databases up to November 2014: Cochrane Library CENTRAL, MEDLINE, MEDLINE In-Process & Other Non-Indexed Citations, EMBASE, WEB OF SCIENCE Core Collection, SCOPUS. The search was restricted to publications in English and was conducted using PRISMA guidelines (Prospero registration no: CRD42015009193).

Keywords were formulated using Scottish Intercollegiate Guidelines Network (SIGN) and COCHRANE search filters for RCTs and SCHARR search filters for QoL. Keywords for psoriasis treatments were developed through a pilot search of other SRs on psoriasis treatments and of the British National Formulary. Search filters are given in the Supplementary Material. We ran supplementary searches and reviewed trial registers and grey literature. Reference lists of all included studies and of recent reviews were also assessed. Electronic publications in advance of print were also included.

Selection criteria

We included RCTs of any psoriasis treatment using at least one QoL instrument in adults (aged 18 and over) with psoriasis of either sex and of any ethnicity, including all psoriasis subtypes of psoriasis. Psoriatic arthritis trials were only included if a

skin-specific QoL instrument was used to differentiate QoL impairment for arthritis from that of psoriasis.

Exclusion criteria

The exclusion criteria for the systematic review were as follows; psoriatic arthritis studies where it was not possible to differentiate data on QoL impact of arthritis from QoL impact of psoriasis, studies which included any patient less than 18 years of age, and articles where the change in QoL values cannot be reliably calculated (including graphical representation). For consistency, QoL data only presented as sub-scales, where total scores are usually calculated, were excluded. Abstracts and posters where further data is not available upon contacting the author were also excluded.

Outcome measures extracted

Primary Outcome

Data recorded included QoL instrument used and scores at baseline, treatment and follow-up endpoints and change in QoL attributed to treatment. For studies with an open label extension, the data was only extracted for the period of the study while it was randomised and controlled. For cross-over trials, the data was extracted prior to the crossover.

Secondary Outcomes

Psoriasis Area and Severity Index (PASI) score or any other psoriasis severity scale (PSS) used.

Data extraction and synthesis

Two reviewers (FA and AC) extracted data independently from all eligible published studies, discussed any disagreements and, if necessary involved a third reviewer (AA) for resolution. We adapted a form, which included the Cochrane Risk of Bias tool, for recording data ¹⁴ that included study design, details of administration, methodological quality and duration of treatment and follow-up. Article quality was quantitatively rated using the JADAD score ¹⁵.

We recorded PASI or any other PSS and all QoL data including the baseline, treatment and follow-up endpoint scores and whether the studies detailed QoL percentage change, full scores, graphs or MCID.

Results

Of 3646 screened records, 99 articles met the inclusion criteria, describing 100 RCTs and 33,215 patients (Fig. 1). Some trials were reported in more than one publication: all relevant references are given in Table 1. Sixty-three studies were placebo-controlled, 33 head-to-head trials and 36 tested a single drug in different dosage regimens or formulations (total >99 as studies fulfilled more than one criterion). Although JADAD scores ¹⁵ were not integral to the inclusion criteria, Table 1 ranks interventions from low to high methodological quality.

Of the 100 trials that measured QoL, 33 tested topical, 18 systemic, 39 biologics, 9 phototherapy, and 10 tested other interventions including educational treatments, diet, writing exercises, balneotherapy, auriculotherapy, relaxation therapies and interdisciplinary care (Table 1, Fig. 2 and Fig. 5). The number of studies reporting each topical intervention were: calcipotriol (13 trials), calcipotriol/bethametasone (7), clobetasol (4) and dithranol (4). Systemic medications trials included: methotrexate (7), ciclosporin (3) and voclosporin (2). Biologic trials included etanercept (14), ustekinumab (8), adalimumab (7), infliximab (6) and alefacept (4). Quality of life was evaluated in nine phototherapy trials. In the category of “other interventions” QoL was used most commonly in educational (3) and diet (3) studies.

The mean JADAD score was 3.34 (range 1-5, Table 1). QoL was tested a range of 2-6 times for topical, 2-25 times for systemic and 2-12 times for biologic interventions. Sixteen trials lasted >12 weeks, 49 from 12 to 24 weeks and 35 >24 weeks. The subject number ranged from 20¹⁶ to 2546¹⁷ patients, with a mean male:female ratio of 1.7:1 per study arm. Mean PASI at baseline ranged from 1.7 to 33.1. The range of mean QoL scores at baseline were: Dermatology Life Quality Index (DLQI) 1.7-20.1 (Minimum-maximum for this measure = 0-30); Short Form 36 (SF-36) physical component summary (PCS) 32.7-56.2 (0-100) and mental component summary (MCS) 35.7-52.4 (0-100); EuroQoL (EQ-5D) Component I 0.48-0.74 (0 to 1), EuroQoL Component II 55.3-76.4 (0-100); and Psoriasis Disability Index (PDI) 7.6-52.6 (0-90).

Instruments used

Thirteen instruments were used to measure QoL; some studies used more than one. Five generic instruments were used: the SF-36¹⁸; EQ-5D¹⁹; General Health Questionnaire (GHQ-12)^{20,21}; Quality of Life Index (QLI)²²; and Sickness Impact Profile (SIP)^{23,24}. In addition, four dermatology specific instruments, three specific to psoriasis and one for scalp dermatitis were used: DLQI²⁵; Skindex²⁶; Dermatology Quality of Life Scales (DQOLS)²⁷; Freiburg Life Quality Assessment (FLQA-d)²⁸; PDI²⁴; 12-Item Psoriasis Quality of Life Questionnaire (PQOL-12)²⁹; Psoriatic Arthritis Quality of Life measure (PsAQoL)³⁰; and SCALPDEX³¹. Of these, the DLQI was the most commonly used QoL instrument (number of studies=83, 83%), followed by the SF-36 (31, 31%), EQ-5D (15, 15%), PDI (14, 14%) and Skindex (5, 5%).

Minimal Clinically Important Difference (MCID) and Statistical Reporting

Of the 100 trials identified, 37 reported MCID; 32 were for DLQI, 10 for SF-36 and six for EQ-5D. The DLQI MCID was considered to be a score change of five³² but is now reported as four³³. Of the 83 RCTs that utilised the DLQI, 32 trials reported the MCID. Change in mean DLQI scores from baseline to treatment end ranged from -14.4³⁴ to +3.0³⁵. Where DLQI score changes were reported, 115 of 142 ‘study arms’ met the 4-point MCID³³. Biologic interventions usually attained DLQI MCID: 91.2% (83 of 91 study arms) met the 4-point MCID. The MCID was attained by 77.8% (14 of 18) of topical, and 52.4% (11 of 21) of systemic treatment arms. One RCT of infliximab measuring QoL at 100 weeks³⁵ reported 3 points worsening of DLQI. However, this study ended prematurely and had a low JADAD score of only 2.

Another trial, with a high JADAD score of 5³⁶ demonstrated mean DLQI score increasing by 0.4 after folic acid was added to methotrexate. The MCID was not met for any study arm.

The SF-36 MCID is a change of three in the total score³⁷. The SF-36 was used in 31 trials and MCID reported in 10. The mean SF-36 change from baseline to treatment end ranged from PCS -7.4³⁵ to +10.1^{38,39} MCS from -0.3⁴⁰ to +12.2³⁹. Where extracting change in SF-36 MCS scores was possible, 52.2% (24 of 46) 'study arms' met the 3-point MCID: 58.3% (21 of 36) of biologic interventions met this. For PCS scores, 50% (24 of 48) of 'study arms' met the MCID as did 60.5% (23 of 38) of biologic interventions. Only 25% (1 of 4) of systemic and no topical treatments met the MCID for both MCS and PCS domains.

The EQ-5D was used in 15 trials, 6 reported the MCID which is 0.05^{41,42}. The PDI was used in 14 trials: the MCID is not known. Skindex was used in five RCTs; MCIDs for Skindex versions have not been published.

Fig. 3 shows correlation between PASI and absolute DLQI ($R^2=0.494$) and percentage ($R^2=0.641$) score changes, where available. In some cases the correlation was weak⁴³, possibly attributed to non-optimal endpoint measurement for QoL where maximum effect may be missed⁴⁴. Furthermore some interventions may have a psychological impact not captured by clinical parameters.

Table 1 gives the studies included that documented full QoL data and statistical significance for intervention versus comparator. Significant changes were reached in 52 trials for the DLQI, 19 for the SF-36, 5 for both the EQ-5D and PDI and 2 for the Skindex. Conversely there was no statistical improvement in 19 trials for the DLQI, 6 for the SF-36, 3 for the EQ-5D, 6 for the PDI and 3 for Skindex. Twelve trials did not report statistical significance for the DLQI, 6 for the SF-36, 4 for the EQ-5D and 2 for the PDI.

The first two studies identified, that fulfilled inclusion criteria, were published in 1998^{45,46}. Since then, reports of psoriasis interventions that fulfilled inclusion criteria have gradually increased over time: 1998-2004 = 12, 2005-2009 = 33, and 2010-2014 = 55 (Fig. 4).

Discussion

QoL assessment is a frequent component in assessing psoriasis treatment efficacy⁴⁷. This SR has identified therapeutic RCTs that demonstrated extractable QoL data, inevitably with heterogeneity in design, disease severity and QoL reporting. Many trials were excluded because of inconsistent reporting and analysis of QoL (Fig. 1)⁴⁸. Baseline and end-of-treatment values were not always provided. Often QoL scores were presented as percentage or value changes without pre or post-intervention scores. Mean values were most commonly reported, though median values are preferable with ordinal data⁴⁷. Standard deviation, *p*-values or confidence intervals were sometimes omitted and intention-to-treat (ITT) numbers were sometimes omitted from the QoL data set. This presented challenges for synthesizing data.

The MCID is the minimal change in score that is considered of clinical relevance⁴⁹.

Of the 13 QoL instruments used, only the DLQI, SF-36 and EQ-5D have MCID values reported in the literature. Although interventions may result in statistically significant QoL improvement, this does not necessarily correlate with clinically important change. MCID values enhance the clinical meaningfulness of QoL scores, particularly if data is correlated with clinical efficacy. Thirty-seven trials reported consideration of MCID, with the DLQI and SF-36 being the most commonly used instruments with known MCID. The EQ-5D was the only other used instrument with known MCID: this data is not reported as numbers were so low.

The MCID of QoL measures may be determined using several methodologies, and at least nine approaches have been reported⁵⁰. These may be categorised into two main groups: anchor-based and distribution based approaches. Whereas the former incorporates patient perspective, the latter determines MCID using statistical significance. The anchor-based method is the most commonly used for determining the MCID, as used in the case of the DLQI³³.

Each methodology has its limitations, for example, anchor-based methods have often been criticised for unequal changes required for deterioration versus improvement of a condition⁵¹. Several factors may influence MCID scores, including patient baseline status, disease group and severity, treatment and patient demographics. Furthermore, it is important to note that MCID values may differ significantly within the same population depending on the methodology chosen⁵². Therefore interpreting MCID scores should be considered in the context of these limitations.

More generic QoL instruments were used (n=5) than specialty (n=4) or condition specific questionnaires (n=3). The DLQI was the most commonly used instrument; possibly because of the simplicity of reporting a single summary score, the ease of completion in 2 minutes⁵³, its widespread use in national psoriasis guidelines⁵⁴ amongst other reasons⁵⁵. The frequency of QoL measurement varied across studies depending on intervention type and trial duration. The UK guidelines, that recommend DLQI measurement at 10 to 16 weeks depending on the biologic, may not capture the best DLQI responses for biologic therapies⁴⁴.

Several reviews have explored the effects of biologic treatment on QoL^{10,11,56,57}, Other SRs have explored QoL in psoriasis; the review by De Korte *et al.*⁹ was not limited to RCTs and this provided difficulties in interpreting the dataset. This SR investigates the patterns of use of QoL instruments as well as the reporting of the outcomes. We employed strict entry criteria allowing for robust comparison across interventions per QoL instrument. We only included data from the double-blind controlled phases of each trial. Nevertheless, the lack of adequate guidelines on QoL data reporting still rendered data analysis problematic.

Kitchen *et al.*¹³ reviewed the ability of psoriasis-specific instruments to adequately capture domains relating to psoriasis: no existing psoriasis specific patient reported outcome (PRO) instrument has sufficient evidence on validity, reliability and sensitivity to change, but both DLQI⁵⁸ and Skindex demonstrated content validity. However, this SR demonstrates that several generic and disease/specialty-specific instruments were sensitive to change with positive QoL outcomes.

The DLQI and SF-36 are the most frequently used instruments across psoriasis RCTs. A European S3 guidelines report on psoriasis systemic treatment⁵⁹ described

the DLQI as an ‘important’ variable in assessment of treatment efficacy. However the DLQI has limitations, including previous criticisms of its uni-dimensionality and low representation of emotional aspects⁶⁰. There is diverse practice in monitoring therapeutic effect on QoL and questionnaire preference. We rejected 113 RCTs because of inextricable QoL data. The European Academy of Dermatology and Venereology Task Force provides recommendations for use of QoL measures⁶¹. Currently there is great variation in the quality of reporting of QoL data^{62,63}, creating difficulties in cross-interventional meta-analyses. This SR emphasizes the need for guidelines concerning appropriate reporting of QoL data.

This review has several limitations. Only English language literature was examined and only studies with extractable QoL data were included. There was too little comparative data from other QoL instruments to be included. Several studies were excluded due to inadequate QoL data reporting. Collating data across studies other than RCTs was not possible due to the wide variation in methodologies. Although an author (AYF) is joint DLQI copyright holder, bias was countered by two independent principal reviewers conducting data search, extraction and synthesis, with a third independent adjudicator reviewer.

We recommend improvement of QoL reporting to include baseline, treatment and follow-up endpoint absolute median scores with interquartile range. Patient numbers should always be reported as well as whether intention to treat was implemented, as previously suggested^{62,63}. If a graphical representation of QoL is published, it should be accompanied by numerical data. Authors should not submit only percentage and/or graphical data to represent study outcomes as this data cannot be used in meta-analysis and systematic reviews. Journals should furthermore implement such criteria prior to accepting publications. The MCID and validated band descriptors where available should be used to interpret data as this holds greater clinical value than statistical significance alone. Researchers should consider the availability of MCID when choosing QoL instruments, and be encouraged to publish MCID information. Whilst there are numerous approaches for calculating MCID scores, there is a need for consensus on new or improved methodological approaches towards calculating MCID. Existing methodologies should be cautiously taken into account by clinicians and researchers alike to facilitate the interpretation of results. Though minimal change is clinically important, the question arises of whether intervention endpoints should target perfect quality of life, rather than demonstrating a measurable improvement.

Acknowledgments

We would like to thank Matthew Manfre and Clarissa Rizzo from Malta University Medical School, who aided with preliminary research for this study.

We would also like to thank Dr. John Ingram (Cardiff University) for his invaluable support and guidance throughout the study. Finally we acknowledge the National Institution of Higher Education, Science, Technology and Innovation-SENESCYT, who made it possible for Dr Andrea Cueva to contribute to this review.

REFERENCES

- 1 Langley RGB, Krueger GG, Griffiths CEM. Psoriasis: epidemiology, clinical features, and quality of life. *Ann. Rheum. Dis.* 2005; **64 suppl 2**: ii18-ii23.
- 2 Finlay AY, Coles EC. The effect of severe psoriasis on the quality of life of 369 patients. *Br. J. Dermatol.* 1995; **132**: 236-44.
- 3 Gordon K, Papp K, Hamilton T *et al.* Efalizumab for patients with moderate to severe plaque psoriasis: a randomized controlled trial. *JAMA* 2003; **290**: 3073-80.
- 4 Menter A, Abramovits W, Colón LE *et al.* Comparing clobetasol propionate 0.05% spray to calcipotriene 0.005% betamethasone dipropionate 0.064% ointment for the treatment of moderate to severe plaque psoriasis. *J. Drugs Dermatol.* 2009; **8**: 52-7.
- 5 Thaci D, Galimberti R, Amaya-Guerra M *et al.* Improvement in aspects of sleep with etanercept and optional adjunctive topical therapy in patients with moderate-to-severe psoriasis: Results from the PRISTINE trial. *J. Eur. Acad. Dermatol. Venereol.* 2014; **28**: 900-6.
- 6 Finlay AY. Quality of life assessments in dermatology. *Semin. Cutan. Med. Surg.* 1998; **17**: 291-6.
- 7 Basra MKA, Shahrukh M. Burden of skin diseases. *Expert Rev. Pharmacoecon. Outcomes Res.* 2009; **9**: 271-83.
- 8 de Korte J, Mommers FMC, Sprangers MAG *et al.* The suitability of quality-of-life questionnaires for psoriasis research: a systematic literature review. *Arch. Dermatol.* 2002; **138**: 1221-7.
- 9 De Korte J, Sprangers MAG, Mommers FMC *et al.* Quality of life in patients with psoriasis: a systematic literature review. *J. Investig. Dermatol. Symp. Proc.* 2004; **9**: 140-7.
- 10 Katugampola RP, Lewis VJ, Finlay AY. The Dermatology Life Quality Index: assessing the efficacy of biological therapies for psoriasis. *Br. J. Dermatol.* 2007; **156**: 945-50.
- 11 Reich K, Sinclair R, Roberts G *et al.* Comparative effects of biological therapies on the severity of skin symptoms and health-related quality of life in patients with plaque-type psoriasis: a meta-analysis. *Current Medical Research and Opinion®* 2008; **24**: 1237-54.
- 12 Frendl DM, Ware Jr JE. Patient-reported functional health and well-being outcomes with drug therapy: a systematic review of randomized trials using the SF-36 health survey. *Med. Care* 2014; **52**: 439-45.
- 13 Kitchen H, Cordingley L, Young H *et al.* Patient - reported outcome measures in psoriasis: the good, the bad and the missing! *Br. J. Dermatol.* 2015; **172**: 1210-21.
- 14 Higgins JPT, Green S. *Cochrane handbook for systematic reviews of interventions*, Vol. 5: Wiley Online Library. 2008.
- 15 Jadad AR, Moore RA, Carroll D *et al.* Assessing the quality of reports of randomized clinical trials: is blinding necessary? *Control. Clin. Trials* 1996; **17**: 1-12.
- 16 Faurischou A, Gyldenløve M, Rohde U *et al.* Lack of effect of the glucagon-like peptide-1 receptor agonist liraglutide on psoriasis in glucose-tolerant patients - a randomized placebo-controlled trial. *J. Eur. Acad. Dermatol. Venereol.* 2015; **29**: 555-9.
- 17 Gelfand JM, Kimball AB, Mostow EN *et al.* Patient - Reported Outcomes and Health - Care Resource Utilization in Patients with Psoriasis Treated with

- Etanercept: Continuous versus Interrupted Treatment. *Value Health* 2008; **11**: 400-7.
- 18 Ware Jr JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Med. Care* 1992; **30**: 473-83.
 - 19 Group TE. EuroQol-a new facility for the measurement of health-related quality of life. *Health Policy* 1990; **16**: 199-208.
 - 20 Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. *Psychol. Med.* 1979; **9**: 139-45.
 - 21 Piccinelli M, Bisoffi G, Bon MG *et al.* Validity and test-retest reliability of the Italian version of the 12-item General Health Questionnaire in general practice: a comparison between three scoring methods. *Compr. Psychiatry* 1993; **34**: 198-205.
 - 22 Ferrans CE, Powers MJ. Quality of life index: development and psychometric properties. *Advances in nursing science* 1985; **8**: 15-24.
 - 23 Bergner M, Bobbitt RA, Carter WB *et al.* The Sickness Impact Profile: development and final revision of a health status measure. *Med. Care* 1981; **19**: 787-805.
 - 24 Finlay AY, Khan GK, Luscombe DK *et al.* Validation of sickness impact profile and psoriasis disability index in psoriasis. *Br. J. Dermatol.* 1990; **123**: 751-6.
 - 25 Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI)—a simple practical measure for routine clinical use. *Clin. Exp. Dermatol.* 1994; **19**: 210-6.
 - 26 Chren M-M, Lasek RJ, Quinn LM *et al.* Skindex, a quality-of-life measure for patients with skin disease: reliability, validity, and responsiveness. *J. Invest. Dermatol.* 1996; **107**: 707-13.
 - 27 Morgan M, McCreedy R, Simpson J *et al.* Dermatology quality of life scales—a measure of the impact of skin diseases. *Br. J. Dermatol.* 1997; **136**: 202-6.
 - 28 Augustin M, Zschocke I, Seidenglanz K *et al.* Validation and clinical results of the FLQA-d, a quality of life questionnaire for patients with chronic skin disease. *Dermatology and Psychosomatics/Dermatologie und Psychosomatik* 2000; **1**: 12-7.
 - 29 Koo J, Kozma CM, Menter A *et al.* Development of a disease specific quality of life questionnaire: the 12-item Psoriasis Quality of Life Questionnaire (PQOL-12). *61st Annual Meeting of the American Academy of Dermatology. San Francisco, CA* 2003; **(Abstr) P606**.
 - 30 McKenna SP, Doward LC, Whalley D *et al.* Development of the PsAQoL: a quality of life instrument specific to psoriatic arthritis. *Ann. Rheum. Dis.* 2004; **63**: 162-9.
 - 31 Chen SC, Yeung J, Chren M-M. Scalpdex: a quality-of-life instrument for scalp dermatitis. *Arch. Dermatol.* 2002; **138**: 803-7.
 - 32 Khilji FA, Gonzalez M, Finlay AY. Clinical meaning of change in Dermatology Life Quality Index scores. *British journal of dermatology-supplement-* 2002; **147**: 50-.
 - 33 Basra MKA, Salek MS, Camilleri L *et al.* Determining the minimal clinically important difference and responsiveness of the Dermatology Life Quality Index (DLQI): further data. *Dermatology* 2015; **230**: 27-33.
 - 34 Guida B, Napoleone A, Trio R *et al.* Energy-restricted, n-3 polyunsaturated fatty acids-rich diet improves the clinical response to immuno-modulating drugs in obese patients with plaque-type psoriasis: A randomized control clinical trial. *Clin. Nutr.* 2014; **33**: 399-405.

- 35 Reich K, Wozel G, Zheng H *et al.* Efficacy and safety of infliximab as continuous or intermittent therapy in patients with moderate-to-severe plaque psoriasis: Results of a randomized, long-term extension trial (RESTORE2). *Br. J. Dermatol.* 2013; **168**: 1325-34.
- 36 Salim A, Tan E, Ilchyshyn A *et al.* Folic acid supplementation during treatment of psoriasis with methotrexate: a randomized, double-blind, placebo-controlled trial. *Br. J. Dermatol.* 2006; **154**: 1169-74.
- 37 Samsa G, Edelman D, Rothman ML *et al.* Determining clinically important differences in health status measures. *Pharmacoeconomics* 1999; **15**: 141-55.
- 38 Dubertret L, Sterry W, Bos JD *et al.* CLinical experience acquired with the efalizumab (Raptiva®)(CLEAR) trial in patients with moderate - to - severe plaque psoriasis: results from a phase III international randomized, placebo - controlled trial. *Br. J. Dermatol.* 2006; **155**: 170-81.
- 39 Ortonne J, Shear N, Shumack S *et al.* Impact of efalizumab on patient-reported outcomes in high-need psoriasis patients: results of the international, randomized, placebo-controlled Phase III Clinical Experience Acquired with Raptiva (CLEAR) trial. *BMC Dermatol.* 2005; **5**: 13.
- 40 De Korte J, Valk P, Sprangers M *et al.* A comparison of twice-daily calcipotriol ointment with once-daily short-contact dithranol cream therapy: quality-of-life outcomes of a randomized controlled trial of supervised treatment of psoriasis in a day-care setting. *Br. J. Dermatol.* 2008; **158**: 375-81.
- 41 O'Brien BJ, Drummond MF. Statistical Versus Quantitative Significance in the Socioeconomic Evaluation of Medicines. *Pharmacoeconomics* 1994; **5**: 389-98.
- 42 Dolan P. Modeling valuations for EuroQol health states. *Med Care* 1997; **35**: 1095-108.
- 43 Roberti ML, Ricottini L, Capponi A *et al.* Immunomodulating treatment with low dose interleukin-4, interleukin-10 and interleukin-11 in psoriasis vulgaris. *J. Biol. Regul. Homeost. Agents* 2014; **28**: 133-9.
- 44 Bishop-Bailey A, Finlay AY, Hatchard C *et al.* Dermatology Quality Life Index (DLQI) responses to biological therapy for psoriasis during standard U.K. clinical care: NICE assessment timelines may not capture the best DLQI response. *Br. J. Dermatol.* 2015; **108**, **173 (Suppl. S1)**: 70 (Abstr.).
- 45 Wall ARJ, Poyner TF, Menday AP. A comparison of treatment with dithranol and calcipotriol on the clinical severity and quality of life in patients with psoriasis. *Br. J. Dermatol.* 1998; **139**: 1005-11.
- 46 Bagel J, Garland W, Breneman D *et al.* Administration of DAB389IL-2 to patients with recalcitrant psoriasis: a double-blind, phase II multicenter trial. *J. Am. Acad. Dermatol.* 1998; **38**: 938-44.
- 47 Basra MKA, Fenech R, Gatt RM *et al.* The Dermatology Life Quality Index 1994–2007: a comprehensive review of validation data and clinical results. *Br. J. Dermatol.* 2008; **159**: 997-1035.
- 48 Le Cleach L, Chassany O, Levy A *et al.* Poor Reporting of Quality of Life Outcomes in Dermatology Randomized Controlled Clinical Trials. *Dermatology* 2008; **216**: 46-55.
- 49 Norman GR, Sloan JA, Wyrwich KW. Interpretation of Changes in Health-Related Quality of Life: The Remarkable Universality of Half a Standard Deviation. *Med. Care* 2003; **41**: 582-92.
- 50 Crosby RD, Kolotkin RL, Williams GR. Defining clinically meaningful change in health-related quality of life. *J. Clin. Epidemiol.* 2003; **56**: 395-407.

- 51 Wright A, Hannon J, Hegedus EJ *et al.* Clinimetrics corner: a closer look at the minimal clinically important difference (MCID). *Journal of Manual & Manipulative Therapy* 2012; **20**: 160-6.
- 52 Terwee CB, Roorda LD, Dekker J *et al.* Mind the MIC: large variation among populations and methods. *J. Clin. Epidemiol.* 2010; **63**: 524-34.
- 53 Loo WJ, Diba V, Chawla M *et al.* Dermatology Life Quality Index: influence of an illustrated version. *Br. J. Dermatol.* 2003; **148**: 279-84.
- 54 Smith CH, Anstey AV, Barker JNWN *et al.* British Association of Dermatologists' guidelines for biologic interventions for psoriasis 2009. *Br. J. Dermatol.* 2009; **161**: 987-1019.
- 55 Finlay AY, Basra MKA, Piguet V *et al.* Dermatology Life Quality Index (DLQI): A Paradigm Shift to Patient-Centered Outcomes. *J. Invest. Dermatol.* 2012; **132**: 2464-5.
- 56 Mattei PL, Corey KC, Kimball AB. Psoriasis Area Severity Index (PASI) and the Dermatology Life Quality Index (DLQI): the correlation between disease severity and psychological burden in patients treated with biological therapies. *J. Eur. Acad. Dermatol. Venereol.* 2014; **28**: 333-7.
- 57 Baker E, Coleman C, Reinhart K *et al.* Effect of Biologic Agents on Non-PASI Outcomes in Moderate-to-Severe Plaque Psoriasis: Systematic Review and Meta-Analyses. *Dermatol. Ther.* 2012; **2**: 1-20.
- 58 Safikhani S, Sundaram M, Bao Y *et al.* Qualitative assessment of the content validity of the Dermatology Life Quality Index in patients with moderate to severe psoriasis. *Journal of Dermatological Treatment* 2011; **24**: 50-9.
- 59 Nast A, Boehncke W-H, Mrowietz U *et al.* S3 – Guidelines on the treatment of psoriasis vulgaris (English version). Update. *J Dtsch Dermatol Ges* 2012; **10**: S1-s95.
- 60 Both H, Essink-Bot M-L, Busschbach J *et al.* Critical Review of Generic and Dermatology-Specific Health-Related Quality of Life Instruments. *J. Invest. Dermatol.* 2007; **127**: 2726-39.
- 61 Prinsen CAC, Korte J, Augustin M *et al.* Measurement of health - related quality of life in dermatological research and practice: outcome of the EADV Taskforce on Quality of Life. *J. Eur. Acad. Dermatol. Venereol.* 2013; **27**: 1195-203.
- 62 Finlay AY. Quality of life in dermatology: after 125 years, time for more rigorous reporting. *Br. J. Dermatol.* 2014; **170**: 4-6.
- 63 Salek MS, Jung S, Brincat - Ruffini LA *et al.* Clinical experience and psychometric properties of the Children's Dermatology Life Quality Index (CDLQI), 1995–2012. *Br. J. Dermatol.* 2013; **169**: 734-59.
- 64 Asahina A, Nakagawa H, Etoh T *et al.* Adalimumab in Japanese patients with moderate to severe chronic plaque psoriasis: Efficacy and safety results from a Phase II/III randomized controlled study. *J Dermatol* 2010; **37**: 299-310.
- 65 Genovese M, Mease P, Thomson G *et al.* Safety and efficacy of adalimumab in treatment of patients with psoriatic arthritis who had failed disease modifying antirheumatic drug therapy. *J. Rheumatol.* 2007; **34**: 1040-50.
- 66 Mease P, Gladman D, Ritchlin C *et al.* Adalimumab for the treatment of patients with moderately to severely active psoriatic arthritis: results of a double-blind, randomized, placebo-controlled trial. *Arthritis Rheum.* 2005; **52**: 3279-89.
- 67 Shikhar R, Heffernan M, Langley RG *et al.* Adalimumab treatment is associated with improvement in health - related quality of life in psoriasis:

- Patient - reported outcomes from a Phase II randomized controlled trial. *Journal of Dermatological treatment* 2007; **18**: 25-31.
- 68 Gordon KB, Langley RG, Leonardi C *et al.* Clinical response to adalimumab treatment in patients with moderate to severe psoriasis: double-blind, randomized controlled trial and open-label extension study. *J. Am. Acad. Dermatol.* 2006; **55**: 598-606.
 - 69 Menter A, Augustin M, Signorovitch J *et al.* The effect of adalimumab on reducing depression symptoms in patients with moderate to severe psoriasis: a randomized clinical trial. *J. Am. Acad. Dermatol.* 2010; **62**: 812-8.
 - 70 Revicki DA, Willian MK, Menter A *et al.* Impact of adalimumab treatment on patient-reported outcomes: Results from a Phase III clinical trial in patients with moderate to severe plaque psoriasis. *Journal of Dermatological Treatment* 2007; **18**: 341-50.
 - 71 Kimball AB, Bensimon AG, Guerin A *et al.* Efficacy and Safety of Adalimumab among Patients with Moderate to Severe Psoriasis with Co-Morbidities Subanalysis of Results from a Randomized, Double-Blind, Placebo-Controlled, Phase III Trial. *Am. J. Clin. Dermatol.* 2011; **12**: 51-62.
 - 72 Menter A, Tying SK, Gordon K *et al.* Adalimumab therapy for moderate to severe psoriasis: a randomized, controlled phase III trial. *J. Am. Acad. Dermatol.* 2008; **58**: 106-15.
 - 73 Revicki D, Menter A, Feldman S *et al.* Adalimumab improves health-related quality of life in patients with moderate to severe plaque psoriasis compared with the United States general population norms: results from a randomized, controlled Phase III study. *Health and quality of life outcomes* 2008; **6**: 75.
 - 74 Revicki D, Willian M, Saurat J *et al.* Impact of adalimumab treatment on health-related quality of life and other patient-reported outcomes: results from a 16-week randomized controlled trial in patients with moderate to severe plaque psoriasis. *Br. J. Dermatol.* 2008; **158**: 549-57.
 - 75 Saurat JH, Stingl G, Dubertret L *et al.* Efficacy and safety results from the randomized controlled comparative study of adalimumab vs. methotrexate vs. placebo in patients with psoriasis (CHAMPION). *Br. J. Dermatol.* 2008; **158**: 558-66.
 - 76 Navarini AA, Poulin Y, Menter A *et al.* Analysis of Body Regions and Components of PASI Scores During Adalimumab or Methotrexate Treatment for Patients With Moderate-to-Severe Psoriasis. *J. Drugs Dermatol.* 2014; **13**: 554-62.
 - 77 Saurat J, Langley R, Reich K *et al.* Relationship between methotrexate dosing and clinical response in patients with moderate to severe psoriasis: subanalysis of the CHAMPION study. *Br. J. Dermatol.* 2011; **165**: 399-406.
 - 78 Thaci D, Ortonne JP, Chimenti S *et al.* A phase IIIb, multicentre, randomized, double - blind, vehicle - controlled study of the efficacy and safety of adalimumab with and without calcipotriol/betamethasone topical treatment in patients with moderate to severe psoriasis: the BELIEVE study. *Br. J. Dermatol.* 2010; **163**: 402-11.
 - 79 Paul C, Kerkhof P, Puig L *et al.* Influence of psoriatic arthritis on the efficacy of adalimumab and on the treatment response of other markers of psoriasis burden: Subanalysis of the BELIEVE study. *Eur. J. Dermatol.* 2012; **22**: 762-9.
 - 80 Lui H, Gulliver W, Tan J *et al.* A randomized controlled study of combination therapy with alefacept and narrow band UVB phototherapy (UVB) for

- moderate to severe psoriasis: efficacy, onset, and duration of response. *J. Drugs Dermatol.* 2012; **11**: 929-37.
- 81 Ellis CN, Mordin MM, Adler EY. Effects of alefacept on health-related quality of life in patients with psoriasis: Results from a randomized, placebo-controlled phase II trial. *Am. J. Clin. Dermatol.* 2003; **4**: 131-9.
- 82 Ellis CN, Krueger GG. Treatment of chronic plaque psoriasis by selective targeting of memory effector T lymphocytes. *N. Engl. J. Med.* 2001; **345**: 248-55.
- 83 Finlay AY, Salek MS, Haney J. Intramuscular alefacept improves health-related quality of life in patients with chronic plaque psoriasis. *Dermatology* 2003; **206**: 307-15.
- 84 Lebwohl M, Christophers E, Langley R *et al.* An international, randomized, double-blind, placebo-controlled phase 3 trial of intramuscular alefacept in patients with chronic plaque psoriasis. *Arch. Dermatol.* 2003; **139**: 719-27.
- 85 Yan H, Tang M, You Y *et al.* Treatment of psoriasis with recombinant human LFA3-antibody fusion protein: a multi-center, randomized, double-blind trial in a Chinese population. *Eur. J. Dermatol.* 2011; **21**: 737-43.
- 86 Papp K, Sundaram M, Bao Y *et al.* Effects of briakinumab treatment for moderate to severe psoriasis on health-related quality of life and work productivity and activity impairment: Results from a randomized phase III study. *J. Eur. Acad. Dermatol. Venereol.* 2014; **28**: 790-8.
- 87 Gordon KB, Langley RG, Gottlieb AB *et al.* A phase III, randomized, controlled trial of the fully human IL-12/23 mAb briakinumab in moderate-to-severe psoriasis. *J. Invest. Dermatol.* 2012; **132**: 304-14.
- 88 Gordon K, Kimball A, Chau D *et al.* Impact of brodalumab treatment on psoriasis symptoms and health-related quality of life: Use of a novel patient-reported outcome measure, the Psoriasis Symptom Inventory. *Br. J. Dermatol.* 2014; **170**: 705-15.
- 89 Papp KA, Leonardi C, Menter A *et al.* Brodalumab, an Anti-Interleukin-17-Receptor Antibody for Psoriasis. *N. Engl. J. Med.* 2012; **366**: 1181-9.
- 90 Gladman D, Fleischmann R, Coteur G *et al.* Effect of certolizumab pegol on multiple facets of psoriatic arthritis as reported by patients: 24-week patient-reported outcome results of a phase III, multicenter study. *Arthritis Care Res.* 2014; **66**: 1085-92.
- 91 Mease PJ, Fleischmann R, Deodhar AA *et al.* Effect of certolizumab pegol on signs and symptoms in patients with psoriatic arthritis: 24-week results of a Phase 3 double-blind randomised placebo-controlled study (RAPID-PsA). *Ann. Rheum. Dis.* 2013; **0**: 1-8.
- 92 Reich K, Ortonne JP, Gottlieb AB *et al.* Successful treatment of moderate to severe plaque psoriasis with the PEGylated Fab certolizumab pegol: Results of a phase II randomized, placebo-controlled trial with a re-treatment extension. *Br. J. Dermatol.* 2012; **167**: 180-90.
- 93 Menter A, Gordon K, Carey W *et al.* Efficacy and safety observed during 24 weeks of efalizumab therapy in patients with moderate to severe plaque psoriasis. *Arch. Dermatol.* 2005; **141**: 31-8.
- 94 Cassano N, Loconsole F, Galluccio A *et al.* Once-weekly administration of high-dosage Etanercept in patients with plaque psoriasis: results of a pilot experience (power study). *Int. J. Immunopathol. Pharmacol.* 2006; **19**: 225-9.
- 95 Dauden E, Griffiths CEM, Ortonne JP *et al.* Improvements in patient - reported outcomes in moderate - to - severe psoriasis patients receiving

- continuous or paused etanercept treatment over 54 weeks: the CRYSTEL study. *J. Eur. Acad. Dermatol. Venereol.* 2009; **23**: 1374-82.
- 96 Ortonne J-P, Griffiths CEM, Daudén E *et al.* Efficacy and safety of continuous versus paused etanercept treatment in patients with moderate-to-severe psoriasis over 54 weeks: the CRYSTEL study. *Expert Review of Dermatology* 2008; **3**: 657-65.
- 97 Luger T, Barker J, Lambert J *et al.* Sustained improvement in joint pain and nail symptoms with etanercept therapy in patients with moderate-to-severe psoriasis. *J. Eur. Acad. Dermatol. Venereol.* 2009; **23**: 896-904.
- 98 Moore A, Gordon K, Kang S *et al.* A randomized, open-label trial of continuous versus interrupted etanercept therapy in the treatment of psoriasis. *J. Am. Acad. Dermatol.* 2007; **56**: 598-603.
- 99 Gniadecki R, Robertson D, Molta C *et al.* Self-reported health outcomes in patients with psoriasis and psoriatic arthritis randomized to two etanercept regimens. *J. Eur. Acad. Dermatol. Venereol.* 2012; **26**: 1436-43.
- 100 Sterry W, Ortonne J-P, Kirkham B *et al.* Comparison of two etanercept regimens for treatment of psoriasis and psoriatic arthritis: PRESTA randomised double blind multicentre trial. *Br. Med. J.* 2010; **340**: c147.
- 101 Lynde CW, Gupta AK, Guenther L *et al.* A randomized study comparing the combination of nbUVB and etanercept to etanercept monotherapy in patients with psoriasis who do not exhibit an excellent response after 12 weeks of etanercept. *Journal of Dermatological Treatment* 2012; **23**: 261-7.
- 102 Ortonne JP, Paul C, Berardesca E *et al.* A 24-week randomized clinical trial investigating the efficacy and safety of two doses of etanercept in nail psoriasis. *Br. J. Dermatol.* 2013; **168**: 1080-7.
- 103 Strohal R, Puig L, Chouela E *et al.* The efficacy and safety of etanercept when used with as-needed adjunctive topical therapy in a randomised, double-blind study in subjects with moderate-to-severe psoriasis (the PRISTINE trial). *Journal of Dermatological Treatment* 2013; **24**: 169-78.
- 104 Zachariae C, Mork N-J, Reunala T *et al.* The combination of etanercept and methotrexate increases the effectiveness of treatment in active psoriasis despite inadequate effect of methotrexate therapy. *Acta Derm. Venereol.* 2008; **88**: 495-501.
- 105 Krueger G, Langley R, Finlay A *et al.* Patient-reported outcomes of psoriasis improvement with etanercept therapy: results of a randomized phase III trial. *Br. J. Dermatol.* 2005; **153**: 1192-9.
- 106 Papp KA, Tying S, Lahfa M *et al.* A global phase III randomized controlled trial of etanercept in psoriasis: safety, efficacy, and effect of dose reduction. *Br. J. Dermatol.* 2005; **152**: 1304-12.
- 107 Feldman SR, Kimball AB, Krueger GG *et al.* Etanercept improves the health-related quality of life of patients with psoriasis: Results of a phase III randomized clinical trial. *J. Am. Acad. Dermatol.* 2005; **53**: 887-9.
- 108 Leonardi CL, Powers JL, Matheson RT *et al.* Etanercept as Monotherapy in Patients with Psoriasis. *N. Engl. J. Med.* 2003; **349**: 2014-22.
- 109 Gottlieb AB, Matheson RT, Lowe N *et al.* A Randomized Trial of Etanercept as Monotherapy for Psoriasis. *Arch. Dermatol.* 2003; **139**: 1627-32.
- 110 Reich K, Segaert S, Van De Kerkhof P *et al.* Once-weekly administration of etanercept 50 mg improves patient-reported outcomes in patients with moderate-to-severe plaque psoriasis. *Dermatology* 2009; **219**: 239-49.

- 111 van de Kerkhof PCM, Segaert S, Lahfa M *et al.* Once weekly administration of etanercept 50 mg is efficacious and well tolerated in patients with moderate-to-severe plaque psoriasis: a randomized controlled trial with open-label extension. *Br. J. Dermatol.* 2008; **159**: 1177-85.
- 112 Tying S, Gordon K, Poulin Y *et al.* Long-term safety and efficacy of 50 mg of etanercept twice weekly in patients with psoriasis. *Arch. Dermatol.* 2007; **143**: 719-26.
- 113 Tying S, Gottlieb A, Papp K *et al.* Etanercept and clinical outcomes, fatigue, and depression in psoriasis: double-blind placebo-controlled randomised phase III trial. *Lancet* 2006; **367**: 29-35.
- 114 Barker J, Hoffmann M, Wozel G *et al.* Efficacy and safety of infliximab vs. methotrexate in patients with moderate-to-severe plaque psoriasis: results of an open-label, active-controlled, randomized trial (RESTORE1). *Br. J. Dermatol.* 2011; **165**: 1109-17.
- 115 Yang H, Wang K, Jin H *et al.* Infliximab monotherapy for Chinese patients with moderate to severe plaque psoriasis: a randomized, double-blind, placebo-controlled multicenter trial. *Chin. Med. J.* 2012; **125**: 1845-51.
- 116 Feldman S, Gottlieb A, Bala M *et al.* Infliximab improves health-related quality of life in the presence of comorbidities among patients with moderate-to-severe psoriasis. *Br. J. Dermatol.* 2008; **159**: 704-10.
- 117 Menter A, Feldman S, Weinstein G *et al.* A randomized comparison of continuous vs. intermittent infliximab maintenance regimens over 1 year in the treatment of moderate-to-severe plaque psoriasis. *J. Am. Acad. Dermatol.* 2007; **56**: 31.e1-15.
- 118 Torii H, Nakagawa H. Infliximab monotherapy in Japanese patients with moderate-to-severe plaque psoriasis and psoriatic arthritis. A randomized, double-blind, placebo-controlled multicenter trial. *J. Dermatol. Sci.* 2010; **59**: 40-9.
- 119 Bissonnette R, Poulin Y, Guenther L *et al.* Treatment of palmoplantar psoriasis with infliximab: A randomized, double-blind placebo-controlled study. *J. Eur. Acad. Dermatol. Venereol.* 2011; **25**: 1402-8.
- 120 Feldman S, Gordon K, Bala M *et al.* Infliximab treatment results in significant improvement in the quality of life of patients with severe psoriasis: a double-blind placebo-controlled trial. *Br. J. Dermatol.* 2005; **152**: 954-60.
- 121 Gottlieb A, Evans R, Li S *et al.* Infliximab induction therapy for patients with severe plaque-type psoriasis: a randomized, double-blind, placebo-controlled trial. *J. Am. Acad. Dermatol.* 2004; **51**: 534-42.
- 122 Reich K, Nestle F, Papp K *et al.* Improvement in quality of life with infliximab induction and maintenance therapy in patients with moderate-to-severe psoriasis: a randomized controlled trial. *Br. J. Dermatol.* 2006; **154**: 1161-8.
- 123 Reich K, Nestle FO, Papp K *et al.* Infliximab induction and maintenance therapy for moderate-to-severe psoriasis: a phase III, multicentre, double-blind trial. *The Lancet* 2005; **366**: 1367-74.
- 124 Krupashankar D, Dogra S, Kura M *et al.* Efficacy and safety of itolizumab, a novel anti-CD6 monoclonal antibody, in patients with moderate to severe chronic plaque psoriasis: Results of a double-blind, randomized, placebo-controlled, phase-III study. *J. Am. Acad. Dermatol.* 2014; **71**: 484-92.
- 125 Leonardi C, Matheson R, Zachariae C *et al.* Anti-interleukin-17 monoclonal antibody ixekizumab in chronic plaque psoriasis. *N. Engl. J. Med.* 2012; **366**: 1190-1.

- 126 Langley RG, Elewski BE, Lebwohl M *et al.* Secukinumab in plaque psoriasis - Results of two phase 3 trials. *N. Engl. J. Med.* 2014; **371**: 326-38.
- 127 Mamolo C, Harness J, Tan H *et al.* Tofacitinib (CP-690,550), an oral Janus kinase inhibitor, improves patient-reported outcomes in a phase 2b, randomized, double-blind, placebo-controlled study in patients with moderate-to-severe psoriasis. *J. Eur. Acad. Dermatol. Venereol.* 2014; **28**: 192-203.
- 128 Paul C, Puig L, Kragballe K *et al.* Transition to ustekinumab in patients with moderate-to-severe psoriasis and inadequate response to methotrexate: A randomized clinical trial (TRANSIT). *Br. J. Dermatol.* 2014; **170**: 425-34.
- 129 Reich K, Puig L, Paul C *et al.* One-year safety and efficacy of ustekinumab and results of dose adjustment after switching from inadequate methotrexate treatment: the TRANSIT randomized trial in moderate-to-severe plaque psoriasis. *Br. J. Dermatol.* 2014; **170**: 435-44.
- 130 Nakagawa H, Schenkel B, Kato M *et al.* Impact of ustekinumab on health-related quality of life in Japanese patients with moderate-to-severe plaque psoriasis: Results from a randomized, double-blind, placebo-controlled phase 2/3 trial. *J. Dermatol.* 2012; **39**: 761-9.
- 131 Igarashi A, Kato T, Kato M *et al.* Efficacy and safety of ustekinumab in Japanese patients with moderate-to-severe plaque-type psoriasis: Long-term results from a phase 2/3 clinical trial. *J. Dermatol.* 2012; **39**: 242-52.
- 132 Kimball A, Gordon K, Fakharzadeh S *et al.* Long-term efficacy of ustekinumab in patients with moderate-to-severe psoriasis: results from the PHOENIX 1 trial through up to 3 years. *Br. J. Dermatol.* 2012; **166**: 861-72.
- 133 Leonardi CL, Kimball AB, Papp KA *et al.* Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 76-week results from a randomised, double-blind, placebo-controlled trial (PHOENIX 1). *The Lancet* 2008; **371**: 1665-74.
- 134 Lebwohl M, Papp K, Han C *et al.* Ustekinumab improves health-related quality of life in patients with moderate-to-severe psoriasis: results from the PHOENIX 1 trial. *Br. J. Dermatol.* 2010; **162**: 137-46.
- 135 Kimball AB, Papp KA, Wasfi Y *et al.* Long-term efficacy of ustekinumab in patients with moderate-to-severe psoriasis treated for up to 5 years in the PHOENIX 1 study. *J. Eur. Acad. Dermatol. Venereol.* 2013; **27**: 1535-45.
- 136 Zhu X, Zheng M, Song M *et al.* Efficacy and safety of ustekinumab in Chinese patients with moderate to severe plaque-type psoriasis: results from a phase 3 clinical trial (LOTUS). *J. Drugs Dermatol.* 2013; **12**: 166-74.
- 137 Langley R, Feldman S, Han C *et al.* Ustekinumab significantly improves symptoms of anxiety, depression, and skin-related quality of life in patients with moderate-to-severe psoriasis: Results from a randomized, double-blind, placebo-controlled phase III trial. *J. Am. Acad. Dermatol.* 2010; **63**: 457-65.
- 138 Papp KA, Langley RG, Lebwohl M *et al.* Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 52-week results from a randomised, double-blind, placebo-controlled trial (PHOENIX 2). *Lancet* 2008; **371**: 1675-84.
- 139 Papp K, Bissonnette R, Rosoph L *et al.* Efficacy of ISA247 in plaque psoriasis: a randomised, multicentre, double-blind, placebo-controlled phase III study. *The Lancet* 2008; **371**: 1337-42.
- 140 McInnes IB, Kavanaugh A, Gottlieb AB *et al.* Efficacy and safety of ustekinumab in patients with active psoriatic arthritis: 1 year results of the

- phase 3, multicentre, double-blind, placebo-controlled PSUMMIT 1 trial. *The Lancet* 2013; **382**: 780-9.
- 141 Kavanaugh A, Menter A, Mendelsohn A *et al.* Effect of ustekinumab on physical function and health-related quality of life in patients with psoriatic arthritis: a randomized, placebo-controlled, phase II trial. *Curr. Med. Res. Opin.* 2010; **26**: 2385-92.
- 142 Gottlieb A, Menter A, Mendelsohn A *et al.* Ustekinumab, a human interleukin 12/23 monoclonal antibody, for psoriatic arthritis: randomised, double-blind, placebo-controlled, crossover trial. *The Lancet* 2009; **373**: 633-40.
- 143 Tsai T, Song M, Shen Y *et al.* Ustekinumab improves health-related quality of life in Korean and Taiwanese patients with moderate to severe psoriasis: results from the PEARL trial. *J. Drugs Dermatol.* 2012; **11**: 943-9.
- 144 Tsai T, Ho J, Song M *et al.* Efficacy and safety of ustekinumab for the treatment of moderate-to-severe psoriasis: a phase III, randomized, placebo-controlled trial in Taiwanese and Korean patients (PEARL). *J. Dermatol. Sci.* 2011; **63**: 154-63.
- 145 Strand V, Fiorentino D, Hu C *et al.* Improvements in patient-reported outcomes with apremilast, an oral phosphodiesterase 4 inhibitor, in the treatment of moderate to severe psoriasis: results from a phase IIb randomized, controlled study. *Health and quality of life outcomes* 2013; **11**: 82.
- 146 Papp K, Cather J, Rosoph L *et al.* Efficacy of apremilast in the treatment of moderate to severe psoriasis: a randomised controlled trial. *Lancet* 2012; **380**: 738-46.
- 147 Möller I, Pérez M, Monfort J *et al.* Effectiveness of chondroitin sulphate in patients with concomitant knee osteoarthritis and psoriasis: a randomized, double-blind, placebo-controlled study. *Osteoarthritis Cartilage* 2010; **18 Suppl 1**: S32-40.
- 148 Beissert S, Pauser S, Sticherling M *et al.* A comparison of mycophenolate mofetil with ciclosporine for the treatment of chronic plaque-type psoriasis. *Dermatology* 2009; **219**: 126-32.
- 149 Thaci D, Brautigam M, Kaufmann R *et al.* Body-weight-independent dosing of cyclosporine micro-emulsion and three times weekly maintenance regimen in severe psoriasis. A randomised study. *Dermatology* 2002; **205**: 383-8.
- 150 Greenberger S, Harats D, Salameh F *et al.* 9-cis-rich beta-carotene powder of the alga *dunaliella* reduces the severity of chronic plaque psoriasis: A randomized, double-blind, placebo-controlled clinical trial. *J. Am. Coll. Nutr.* 2012; **31**: 320-6.
- 151 Kaltwasser J, Nash P, Gladman D *et al.* Efficacy and safety of leflunomide in the treatment of psoriatic arthritis and psoriasis: a multinational, double-blind, randomized, placebo-controlled clinical trial. *Arthritis Rheum.* 2004; **50**: 1939-50.
- 152 Nash P, Thaci D, Behrens F *et al.* Leflunomide improves psoriasis in patients with psoriatic arthritis: An in-depth analysis of data from the TOPAS study. *Dermatology* 2006; **212**: 238-49.
- 153 Flytström I, Stenberg B, Svensson A *et al.* Methotrexate vs. ciclosporin in psoriasis: effectiveness, quality of life and safety. A randomized controlled trial. *Br. J. Dermatol.* 2008; **158**: 116-21.
- 154 Asawanonda P, Nateetongrungsak Y. Methotrexate plus narrowband UVB phototherapy versus narrowband UVB phototherapy alone in the treatment of

- plaque-type psoriasis: A randomized, placebo-controlled study. *J. Am. Acad. Dermatol.* 2006; **54**: 1013-8.
- 155 Ho S, Yeung C, Chan H. Methotrexate versus traditional Chinese medicine in psoriasis: a randomized, placebo-controlled trial to determine efficacy, safety and quality of life. *Clin. Exp. Dermatol.* 2010; **35**: 717-22.
- 156 Gupta A, Langley R, Lynde C *et al.* ISA247: quality of life results from a phase II, randomized, placebo-controlled study. *J. Cutan. Med. Surg.* 2008; **12**: 268-75.
- 157 Kunynetz R, Carey W, Thomas R *et al.* Quality of life in plaque psoriasis patients treated with voclosporin: a Canadian phase III, randomized, multicenter, double-blind, placebo-controlled study. *Eur. J. Dermatol.* 2011; **21**: 89-94.
- 158 Drouin R, Moroni O, Cantin K *et al.* A double-blind, placebo-controlled, randomized trial of XP-828L (800 mg) on the quality of life and clinical symptoms of patients with mild-to-moderate psoriasis. *Altern. Med. Rev.* 2008; **13**: 145-52.
- 159 Koek MBG, Buskens E, Van Weelden H *et al.* Home versus outpatient ultraviolet B phototherapy for mild to severe psoriasis: Pragmatic multicentre randomised controlled non-inferiority trial (PLUTO study). *Bmj* 2009; **338**: 1181-6.
- 160 Koek MBG, Buskens E, Steegmans PHA *et al.* UVB phototherapy in an outpatient setting or at home: A pragmatic randomised single-blind trial designed to settle the discussion. The PLUTO study. *BMC Med Res Methodol* 2006; **6**.
- 161 Gahalaut P, Soodan PS, Mishra N *et al.* Clinical efficacy of psoralen+sunlight vs. combination of isotretinoin and psoralen+sunlight for the treatment of chronic plaque-type psoriasis vulgaris: A randomized hospital-based study. *Photodermatology Photoimmunology and Photomedicine* 2014.
- 162 Klein A, Schiffner R, Schiffner-Rohe J *et al.* A randomized clinical trial in psoriasis: synchronous balneophototherapy with bathing in Dead Sea salt solution plus narrowband UVB vs. narrowband UVB alone (TOMESA-study group). *J. Eur. Acad. Dermatol. Venereol.* 2011; **25**: 570-8.
- 163 Choonhakarn C, Busaracome P, Sripanidkulchai B *et al.* A prospective, randomized clinical trial comparing topical aloe vera with 0.1% triamcinolone acetonide in mild to moderate plaque psoriasis. *J. Eur. Acad. Dermatol. Venereol.* 2010; **24**: 168-72.
- 164 Ortonne JP, Esposito M, Chimenti S *et al.* Betamethasone valerate dressing is non-inferior to calcipotriol- betamethasone dipropionate ointment in the treatment of patients with mild-to-moderate chronic plaque psoriasis: Results of a randomized assessor-blinded multicentre trial. *J. Eur. Acad. Dermatol. Venereol.* 2014; **28**: 1226-34.
- 165 Ortonne J, Ganslandt C, Tan J *et al.* Quality of life in patients with scalp psoriasis treated with calcipotriol/betamethasone dipropionate scalp formulation: a randomized controlled trial. *J. Eur. Acad. Dermatol. Venereol.* 2009; **23**: 919-26.
- 166 Kragballe K, Hoffmann V, Ortonne JP *et al.* Efficacy and safety of calcipotriol plus betamethasone dipropionate scalp formulation compared with calcipotriol scalp solution in the treatment of scalp psoriasis: a randomized controlled trial. *Br J Dermatol* 2009; **161**: 159-66.

- 167 Saraceno R, Andreassi L, Ayala F *et al.* Efficacy, safety and quality of life of calcipotriol/betamethasone dipropionate (Dovobet®) versus calcipotriol (Daivonex®) in the treatment of psoriasis vulgaris: A randomized, multicentre, clinical trial. *Journal of Dermatological Treatment* 2007; **18**: 361-5.
- 168 Zheng Z, Zhu X, Wang B *et al.* Effect of daivobet® on the quality of life in chinese patients with stable psoriasis vulgaris: A multicenter, randomized, double-blind, positive controlled and parallel group study. *World Applied Sciences Journal* 2011; **13**: 1240-7.
- 169 Van De Kerkhof PCM, Van der Valk PGM, Swinkels OQJ *et al.* A comparison of twice - daily calcipotriol ointment with once - daily short - contact dithranol cream therapy: a randomized controlled trial of supervised treatment of psoriasis vulgaris in a day - care setting. *Br. J. Dermatol.* 2006; **155**: 800-7.
- 170 Menter A, Gold LS, Bukhalo M *et al.* Calcipotriene plus betamethasone dipropionate topical suspension for the treatment of mild to moderate psoriasis vulgaris on the body: A randomized, double-blind, vehicle-controlled trial. *J. Drugs Dermatol.* 2013; **12**: 92-8.
- 171 Van De Kerkhof PC. The impact of a two-compound product containing calcipotriol and betamethasone dipropionate (Daivobet/ Dovobet) on the quality of life in patients with psoriasis vulgaris: a randomized controlled trial. *Br. J. Dermatol.* 2004; **151**: 663-8.
- 172 Woo WK, McKenna KE. Combination TL01 ultraviolet B phototherapy and topical calcipotriol for psoriasis: A prospective randomized placebo-controlled clinical trial. *Br. J. Dermatol.* 2003; **149**: 146-50.
- 173 Hutchinson PE, Marks R, White J. The efficacy, safety and tolerance of calcitriol 3 µg/g ointment in the treatment of plaque psoriasis: A comparison with short-contact dithranol. *Dermatology* 2000; **201**: 139-45.
- 174 Bergstrom KG, Arambula K, Kimball AB. Medication Formulation Affects Quality of Life: A Randomized Single-Blind Study of Clobetasol Propionate Foam 0.05% Compared With a Combined Program of Clobetasol Cream 0.05% and Solution 0.05% for the Treatment of Psoriasis. *Cutis* 2003; **72**: 407-11.
- 175 Mraz S, Leonardi C, Colon LE *et al.* Different treatment outcomes with different formulations of clobetasol propionate 0.05% for the treatment of plaque psoriasis. *Journal of Dermatological Treatment* 2008; **19**: 354-9.
- 176 Sofen H, Hudson CP, Cook-Bolden FE *et al.* Clobetasol propionate 0.05% spray for the management of moderate-to-severe plaque psoriasis of the scalp: results from a randomized controlled trial. *J. Drugs Dermatol.* 2011; **10**: 885-92.
- 177 Prins M, Krabbe PFM, Swinkels QOJ *et al.* The effect of treatment on quality of life in psoriasis patients. *Acta Derm. Venereol.* 2005; **85**: 304-10.
- 178 Alora-Palli MB, Perkins AC, Van Cotti A *et al.* Efficacy and Tolerability of a Cosmetically Acceptable Coal Tar Solution in the Treatment of Moderate Plaque Psoriasis A Controlled Comparison with Calcipotriene (Calcipotriol) Cream. *Am. J. Clin. Dermatol.* 2010; **11**: 275-83.
- 179 Bernstein S, Donsky H, Gulliver W *et al.* Treatment of mild to moderate psoriasis with Relieva, a Mahonia aquifolium extract - A double-blind, placebo-controlled study. *Am. J. Ther.* 2006; **13**: 121-6.
- 180 Tiplica G, Salavastru C. Mometasone furoate 0.1% and salicylic acid 5% vs. mometasone furoate 0.1% as sequential local therapy in psoriasis vulgaris. *J. Eur. Acad. Dermatol. Venereol.* 2009; **23**: 905-12.

- 181 Galvez GJ, Peiro P, Lucas M *et al.* Quality of life and assessment after local application of sulphurous water in the home environment in patients with psoriasis vulgaris: A randomised placebo-controlled pilot study. *European Journal of Integrative Medicine* 2012; **4**: e213-e8.
- 182 Lu C, Xiang Y, Xie X *et al.* A randomized controlled single-blind clinical trial on 84 outpatients with psoriasis vulgaris by auricular therapy combined with optimized Yinxieling Formula. *Chin. J. Integr. Med.* 2012; **18**: 186-91.
- 183 Schmitt J, Wozel G, Garzarolli M *et al.* Effectiveness of Interdisciplinary vs. Dermatological care of moderate-to-severe psoriasis: A pragmatic randomised controlled trial. *Acta Derm. Venereol.* 2014; **94**: 192-7.
- 184 Ersser S, Cowdell F, Nicholls P *et al.* A pilot randomized controlled trial to examine the feasibility and efficacy of an educational nursing intervention to improve self-management practices in patients with mild-moderate psoriasis. *J. Eur. Acad. Dermatol. Venereol.* 2012; **26**: 738-45.
- 185 Bostoen J, Bracke S, Keyser S *et al.* An educational programme for patients with psoriasis and atopic dermatitis: a prospective randomized controlled trial. *Br. J. Dermatol.* 2012; **167**: 1025-31.
- 186 Vedhara K, Morris R, Booth R *et al.* Changes in mood predict disease activity and quality of life in patients with psoriasis following emotional disclosure. *J. Psychosom. Res.* 2007; **62**: 611-9.
- 187 Jensen P, Zachariae C, Christensen R *et al.* Effect of weight loss on the severity of psoriasis: a randomized clinical study. *JAMA dermatology* 2013; **149**: 795-801.
- 188 Fordham B, Griffiths CEM, Bundy C. A pilot study examining mindfulness-based cognitive therapy in psoriasis. *Psychology, Health and Medicine* 2015; **20**: 121-7.
- 189 Chambers C, Parsi K, Schupp C *et al.* Patient-centered online management of psoriasis: a randomized controlled equivalency trial. *J. Am. Acad. Dermatol.* 2012; **66**: 948-53.
- 190 Tabolli S, Naldi L, Pagliarello C *et al.* Evaluation of the impact of writing exercises interventions on quality of life in patients with psoriasis undergoing systemic treatments. *Br. J. Dermatol.* 2012; **167**: 1254-64.

Tables

Table 1. Included studies: Jadad score, treatment duration, sample characteristics, QoL instruments and main psoriasis severity scale used

Main QoL article, Year (salami publications used to derive non-QoL data)	J A D A D	Interventions (Grouped per intervention, ranked by increasing JADAD score)	Treat ment End point (Weeks) Unless specified	Number of Subjects	QoL instruments used * Significant improvement vs comparator † No significant improvement vs comparator ° No significance data provided	Psoriasis severity scale used (Primary)
BIOLOGICS						
Asahina 2010 ⁶⁴	3	Adalimumab vs Placebo	24	169	DLQI*, SF-36*	PASI
Genovese 2007 ⁶⁵	4	Adalimumab vs Placebo	12	100	DLQI*, HAQ-DI*, SF-36* (PCS ONLY), FACIT F†	PGA
Mease 2005 ⁶⁶	4	Adalimumab vs Placebo	24	313	DLQI*, HAQ-DI*, SF-36* (PCS ONLY)	PASI

Shikiar 2007 ⁶⁷ (Gordon 2006 ⁶⁸ , Menter 2010 ⁶⁹)	4	Adalimumab vs Placebo	12	148	DLQI*, EQ-5D*, SF-36* (EXCEPT FOR PCS IN 40 MG EOW ARM)	PASI
Revicki 2007 ⁷⁰ (Kimball 2011 ⁷¹ , Menter 2008 ⁷² , ⁷³ Revicki 2008 ⁷³ ,)	5	Adalimumab vs Placebo	16	1212	DLQI*, SF-36*	PASI
Revicki 2008 ⁷⁴ (Saurat 2008 ⁷⁵ , Navarini 2014 ⁷⁶ , Saurat 2011 ⁷⁷)	5	Adalimumab vs MTX	16	271	DLQI*, EQ-5D*	PASI
Thaci 2010 ⁷⁸ , Paul 2012 ⁷⁹	5	Adalimumab + CAL/BD vs Adalimumab + Vehicle	16	730	DLQI [†]	PASI
Lui 2012 ⁸⁰	2	Alefacept vs nUVB	16	98	DLQI [†]	PASI
Ellis 2003 ⁸¹ (Ellis 2001 ⁸²)	4	Alefacept vs Placebo	12	205	DLQI ⁰ , SF-36 ⁰ , DQOLS ⁰	PASI
Finlay 2003 ⁸³ (Lebwohl 2003 ⁸⁴)	4	Alefacept vs Placebo	12	507	DLQI [†] , DQOLS* (15 MG ARM ONLY), SF-36* (PCS ONLY)	PASI
Yan 2011 ⁸⁵	4	Alefacept vs MTX	12	212	DLQI [†] , SF-36 [†]	PASI
Papp 2014 ⁸⁶ (Gordon 2012 ⁸⁷)	5	Briakinumab vs Placebo	12-40	2209	DLQI*, SF-36*	PASI
Gordon 2014 ⁸⁸ (Papp 2012 ⁸⁹)	5	Brodalumab vs Placebo	12	198	DLQI*, SF-36* (140 MG ARM ONLY, AND MCS FOR 210 MG ARM)	PASI
Gladman 2014 ⁹⁰ (Mease 2013 ⁹¹)	3	Certolizumab vs Placebo	24	409	DLQI*, SF-36*, PSAQOL*, HAQ-DI*	PASI

Reich 2012 ⁹²	5	Certolizumab vs Placebo	12	176	DLQI ⁰	PASI
Dubertret 2006 ³⁸ (Ortonne 2005 ³⁹)	4	Efalizumab vs Placebo	12	793	DLQI [*] , SF-36 [*]	PASI
Gordon 2003 ³ (Menter 2005 ⁹³)	5	Efalizumab vs Placebo	12	556	DLQI [*] , PSA [*]	PASI
Cassano 2006 ⁹⁴	1	Etanercept (Dose-comparison)	12	108	DLQI [†]	PASI
Dauden 2009 ⁹⁵ (Ortonne 2008 ⁹⁶ , Luger 2009 ⁹⁷)	1	Etanercept (Continuous vs Intermittent)	54	720	DLQI [*] , EQ-5D [†] , SF-36 [†]	PASI
Gelfand 2008 ¹⁷ (Moore 2007 ⁹⁸)	2	Etanercept (Continuous vs Intermittent)	24	2546	DLQI ⁰ , EQ-5D ⁰ (EuroQoL-FT), SF-36 ⁰	PASI
Gniadecki 2012 ⁹⁹ (Serry 2010 ¹⁰⁰)	3	Etanercept (Dose-comparison)	12	752	DLQI [*] , EQ-5D [†] , HAQ-DI [†]	PASI
Lynde 2012 ¹⁰¹	3	Etanercept vs Etanercept + nUVB	12	75	DLQI [†]	PASI
Ortonne 2013 ¹⁰²	3	Etanercept (Dose-comparison)	24	72	DLQI ⁰	PASI
Thaci 2014 ⁵ (Strohal 2013 ¹⁰³)	3	Etanercept (Dose-comparison)	12	273	DLQI [*]	PASI
Zachariae 2008 ¹⁰⁴	3	Etanercept + MTX (Tapered vs Continued)	24	59	DLQI [*] , EQ-5D [†]	PASI
Krueger 2005 ¹⁰⁵ (Papp 2005 ¹⁰⁶)	4	Etanercept vs Placebo	12	583	DLQI [*] , SF-36 [*]	PASI
Feldman 2005 ¹⁰⁷ (Leonardi 2003 ¹⁰⁸)	5	Etanercept vs Placebo	12	652	DLQI [*]	PASI
Gottlieb 2003 ¹⁰⁹	5	Etanercept vs Placebo	24	112	DLQI [*]	PASI

Reich 2009 ¹¹⁰ (Van de Kerkhof 2008 ¹¹¹)	5	Etanercept vs Placebo	12	142	DLQI*, SF-36*	PASI
Tyring 2007 ¹¹² (Tyring 2006 ¹¹³)	5	Etanercept vs Placebo	12	618	DLQI*	PASI
Reich 2013 ³⁵ , extension of trial Barker 2011 ¹¹⁴)	2	Infliximab (Continuous vs Intermittent)	100	441	DLQI ⁰ , SF-36 ⁰	PASI
Yang 2012 ¹¹⁵	2	Infliximab vs Placebo	10	129	DLQI*	PASI
Barker 2011 ¹¹⁴	3	Infliximab vs MTX	16	868	DLQI*, SF-36* (PCS ONLY), EQ-5D*	PASI
Feldman 2008 ¹¹⁶ (Menter 2007 ¹¹⁷)	4	Infliximab vs Placebo	10	1430	DLQI*, SF-36*	PASI
Torii 2010 ¹¹⁸	4	Infliximab vs Placebo	14	54	DLQI*	PASI
Bissonnette 2011 ¹¹⁹	5	Infliximab vs Placebo	14	24	DLQI [†]	m- PPPASI
Feldman 2005 ¹²⁰ (Gottlieb 2004 ¹²¹)	5	Infliximab vs Placebo	10	249	DLQI*	PASI
Reich 2006 ¹²² (Reich 2005 ¹²³)	5	Infliximab vs Placebo	24	378	DLQI*, SF-36*	PASI
Krupashankar 2014 ¹²⁴	4	Itolizumab (Loading dose vs. Non-loading dose)	12	225	DLQI ⁰ , SF-36 ⁰	PASI
Leonardi 2012 ¹²⁵	5	Ixekizumab vs Placebo	8	142	DLQI*	PASI
Langley 2014 ¹²⁶	4	Secukinumab vs Etanercept vs Placebo	12	2044	DLQI* (VS PLACEBO ONLY)	PASI

Mamolo 2014 ¹²⁷	4	Tofacitinib vs Placebo	12	197	DLQI*, SF-36*	PASI
Paul 2014 ¹²⁸ (Reich 2014 ¹²⁹)	2	Ustekinumab + MTX (Gradual vs. Immediate withdrawal)	16	489	DLQI ⁰ , EQ-5D ⁰ , VAS ⁰	PASI
Nakagawa 2012 ¹³⁰ (Igarashi 2012 ¹³¹)	3	Ustekinumab vs Placebo	12	158	DLQI*, SF-36* (PCS ONLY), PDI*	PASI
Kimball 2012 ¹³² (Leonardi 2008 ¹³³ , Lebwohl 2010 ¹³⁴ , Kimball 2013 ¹³⁵)	3	Ustekinumab vs Placebo	12	766	DLQI*, SF-36 ⁰	PASI
Zhu 2013 ¹³⁶	3	Ustekinumab vs Placebo	12	322	DLQI*	PASI
Langley 2010 ¹³⁷ (Papp 2008 ^{138,139})	4	Ustekinumab vs Placebo	12	1230	DLQI*	PASI
McInnes 2013 ¹⁴⁰	4	Ustekinumab vs Placebo	24	615	DLQI*, HAQ-DI*, SF-36* (EXCEPT MCS IN 45 MG ARM)	PASI
Kavanaugh 2010 ¹⁴¹ (Gottlieb 2009 ¹⁴²)	5	Ustekinumab vs Placebo	12	146	DLQI*, HAQ-DI*	PASI
Tsai 2012 ¹⁴³ (Tsai 2011 ¹⁴⁴)	5	Ustekinumab vs Placebo	12	121	DLQI*	PASI
SYSTEMICS						
Strand 2013 ¹⁴⁵ (Papp 2012 ¹⁴⁶)	5	Apremilast vs Placebo	16	352	DLQI* (EXCEPT 10 MG ARM), SF 36* (MCS ONLY)	PASI

Möller 2010 ¹⁴⁷	4	Chondroitin Sulphate vs Placebo	12	116	DLQI [†] , SF-36 [†]	PASI
Beissert 2009 ¹⁴⁸	3	Ciclosporin vs Mycophenolate Mofetil	12	54	PDI [†]	PASI
Thaci 2002 ¹⁴⁹	4	Ciclosporin (Body-weight dependent dose vs Independent dose)	12	212	PDI ⁰	PASI
Roberti 2014 ⁴³	4	Cytokines (low dose)	12	41	DLQI [*]	PASI
Bagel 1998 ⁴⁶	2	DAB389IL02 vs Placebo	4	70	DLQI ⁰	PASI
Greenberger 2012 ¹⁵⁰	3	Dunaliella bardawil (9-cis b-carotene) vs Placebo	12	44	DLQI [*]	PASI
Salim 2006 ³⁶	5	MTX + Folic acid vs MTX	12	22	DLQI [†]	PASI
Kaltwasser 2004 ¹⁵¹ (Nash 2006 ¹⁵²)	5	Leflunomide vs Placebo	24	190	DLQI [*] , HAQ [*]	PASI
Faurschou 2014 ¹⁶	4	Liraglutide vs Placebo	8	20	DLQI [†]	PASI
Flytström 2008 ¹⁵³	3	MTX vs Ciclosporin	12	84	DLQI [†] , SF-36 [*] (PCS ONLY)	PASI
Asawanonda 2006 ¹⁵⁴	4	MTX + nUVB vs MTX + Placebo	24	24	DLQI [†]	PASI
Ho 2010 ¹⁵⁵	2	Traditional Chinese Medicine vs MTX	24	61	PDI [*] (FOR MTX VS PLACEBO)	PASI
Gupta 2008 ¹⁵⁶	3	Voclosporin vs Placebo	12	201	DLQI ⁰ , PDI ⁰	PASI
Kunynetz 2011 ¹⁵⁷ (Papp 2008 ¹³⁹)	5	Voclosporin vs Placebo	12	451	DLQI [*] (FOR 0.3 AND 0.4 MG ARMS), PDI [*] (FOR 0.3 AND 0.4 MG ARMS)	PASI

Drouin 2008 ¹⁵⁸	5	XP-828L (Dermylex) vs Placebo	8	26	DLQI*	PASI
PHOTOTHERAPY						
Koek 2009 ¹⁵⁹ (Koek 2006 ¹⁶⁰)	2	Home UVB (TL-01) vs Outpatient UVB (TL-01)	'46 irradiation s'	196	PDI†, SF-36 ⁰ , EQ-5D ⁰	PASI
Gahalaut 2014 ¹⁶¹	2	PUVASol + Isotretinoin vs PUVASol	12	40	DLQI*	PASI
Klein 2011 ¹⁶²	2	Synchronous balneophototherapy vs nUVB monotherapy	'35 sessions'	367	PDI†, SIP*, FLQA-d*(PHYSICAL COMPLAINTS AND GLOBAL HEALTH ONLY)	PASI
TOPICALS						
Choonhakarn 2010 ¹⁶³	4	Aloe Vera vs Triamcinolone Acetonide	8	75	DLQI†	PASI
Ortonne 2014 ¹⁶⁴	5	Betamethasone valerate dressing vs CAL/BD ointment	4	324	DLQI*	TSS-4
Wall 1998 ⁴⁵	1	CAL vs Dithranol	12	306	PDI†, SIP†	IGA
Ortonne 2009 ¹⁶⁵ (Kragballe 2009 ¹⁶⁶)	2	CAL/BD scalp formulation vs CAL scalp solution	8	312	SF-36†, Skindex-16*	TSS

Saraceno 2007 ¹⁶⁷	2	CAL/BD vs CAL	4	150	Skindex-29*	PASI
Zheng 2011 ¹⁶⁸	2	CAL/BD vs CAL	4	320	DLQI*	VAS
De Korte 2008 ⁴⁰ (Van De Kerkhof 2006 ¹⁶⁹)	3	CAL vs Dithranol	12	106	Skindex-29†, SF-36†	Modified PASI
Menter 2013 ¹⁷⁰	4	CAL/BD vs BD vs CAL vs Vehicle	8	1152	DLQI* (EXCEPT VS CAL GROUP)	PASI
Van De Kerkhof 2004 ¹⁷¹	4	CAL/BD vs CAL vs Placebo	4	828	EQ-5D*, PDI†	PASI
Woo 2003 ¹⁷²	5	CAL + nUVB vs CAL vs Vehicle	20 sessions	50	PDI†	PASI
Hutchinson 2000 ¹⁷³	1	Calcitriol vs Dithranol	8	114	PDI*	PASI
Bergstrom 2003 ¹⁷⁴	1	Clobetasol (Foam vs Cream/Solution)	2	32	DLQI†, EQ-5D*	PASI
Menter 2009 ⁴	1	Clobetasol propionate vs Calcipotriene + Betamethasone dipropionate	4	93	PQOLS†	ODS
Mraz 2008 ¹⁷⁵	1	Clobetasol propionate (Spray vs Foam)	2-4	77	DLQI*	IGS
Sofen 2011 ¹⁷⁶	2	Clobetasol propionate spray vs Vehicle	4	81	Scalpdex*	GSS
Prins 2005 ¹⁷⁷	2	Dithranol (Short contact) + nUVB vs Dithranol (Inpatient)	8-12	238	SIP*, PDI*	PASI

Alora-Palli 2010 ¹⁷⁸	2	Liquor Carbonis Distillate (LCD) Solution vs Calcipotriene cream	12	60	DLQI [†]	Modified PASI
Bernstein 2006 ¹⁷⁹	2	M. Aquifolium vs Placebo	12	200	QLI [*]	PASI
Tiplica 2009 ¹⁸⁰	3	Mometasone furoate 0.1% + Salicylic acid 5% vs Mometasone furoate 0.1%	1	359	DLQI ⁰	PASI
Galvez 2012 ¹⁸¹	3	Sulphurous Mineral Waters Spray vs Distilled Water Spray	2	39	DLQI [†]	PASI
OTHERS						
Lu 2012 ¹⁸²	2	Auricular therapy + Yinxieling formula vs Yinxieling formula	8	84	DLQI [†]	PASI
Schmitt 2014 ¹⁸³	3	Interdisciplinary dermatological and psychiatric care for psoriasis vs Dermatological care for psoriasis	24	47	DLQI [†]	PASI
Ersser 2012 ¹⁸⁴	2	Educational nursing intervention vs No education intervention	6	64	DLQI [†]	PASI
Bostoen 2012 ¹⁸⁵	4	Educational programme vs No educational intervention	12	29	DLQI [*] , PDI [*] , Skindex-29 [†]	PASI
Vedhara 2007 ¹⁸⁶	2	Emotional disclosure vs Standard control writing intervention	0.5	59	DLQI ⁰	PASI
Guida 2014 ³⁴	2	Patients on immunosuppressives: Energy-restricted diet vs Usual diet	24	44	DLQI [*]	PASI

Jensen 2013 ¹⁸⁷	2	Low energy diet vs Standard routine dietary guidance	16	60	DLQI*	PASI
Fordham 2014 ¹⁸⁸	2	MCBT vs Usual treatment	8	29	DLQI*	SAPASI
Chambers 2012 ¹⁸⁹	2	Online Healthcare Delivery vs In-Office Care	16	64	DLQI ⁰ , EQ-5D ⁰	PASI
Tabolli 2012 ¹⁹⁰	2	Writing exercise (Pennebaker) vs Educational intervention	0.5	202	Skindex-29 [†] , SF-36 [†] , GHQ [†]	PASI

MTX – Methotrexate

nUVB – Narrowband UVB

MCBT - Mindfulness-based cognitive therapy

CALC – Calipotriol

BD – Betamethasone dipropionate

* Indicates significant improvement versus comparator(s)

† Indicates no significant improvement versus comparator(s)

⁰ Indicates no significance data was provided

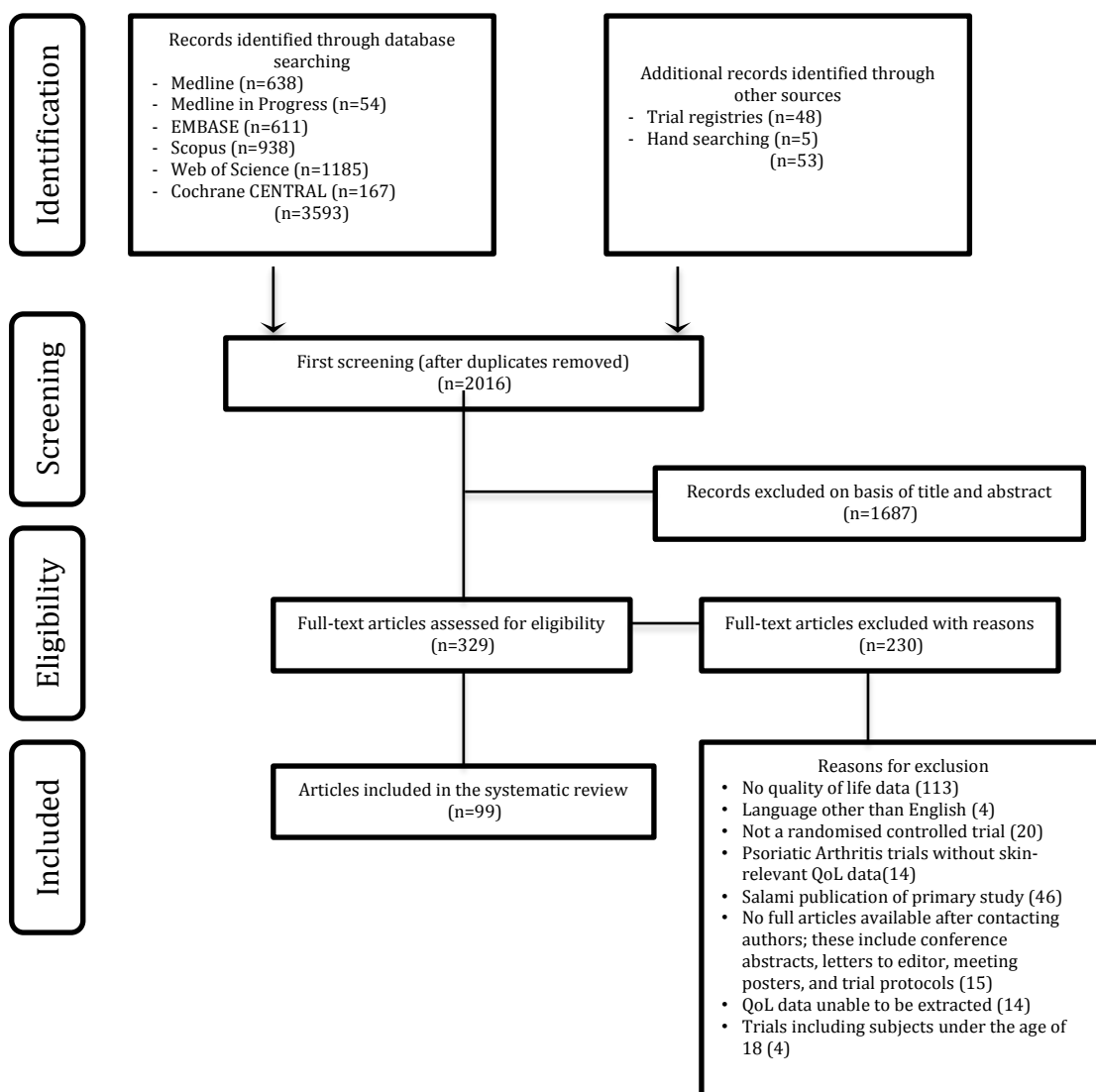


Figure 1. Flow diagram of article selection

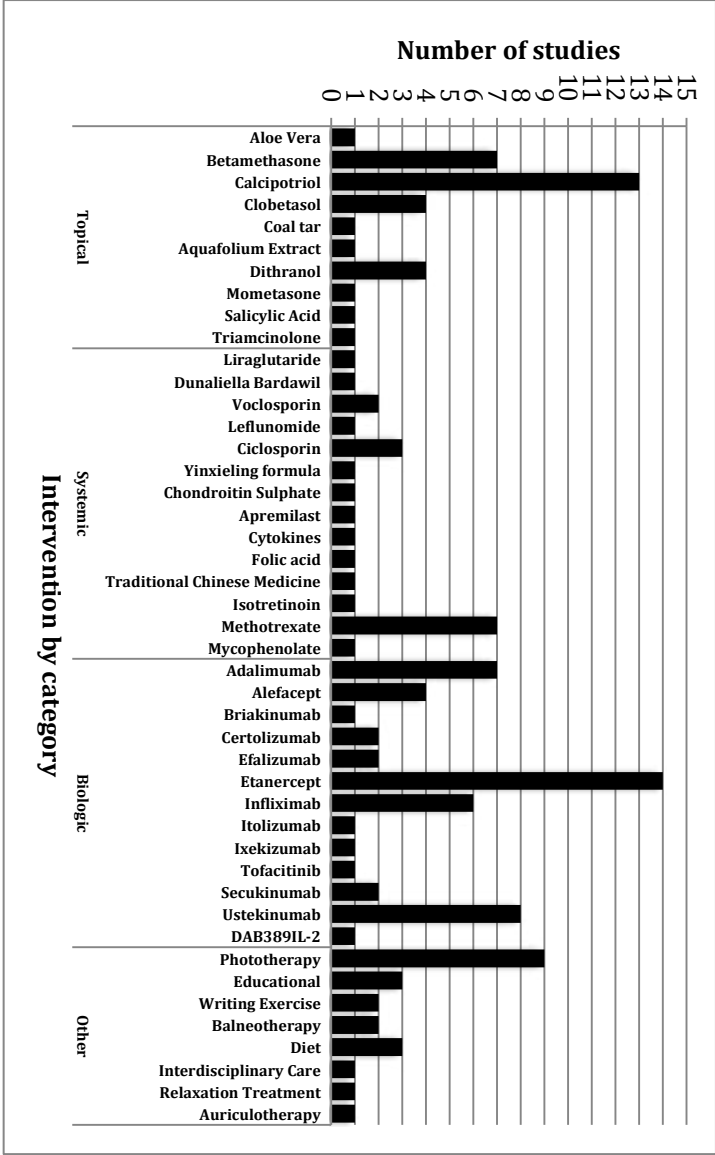


Figure 2. Number of randomised controlled trials of each intervention that measured HRQoL

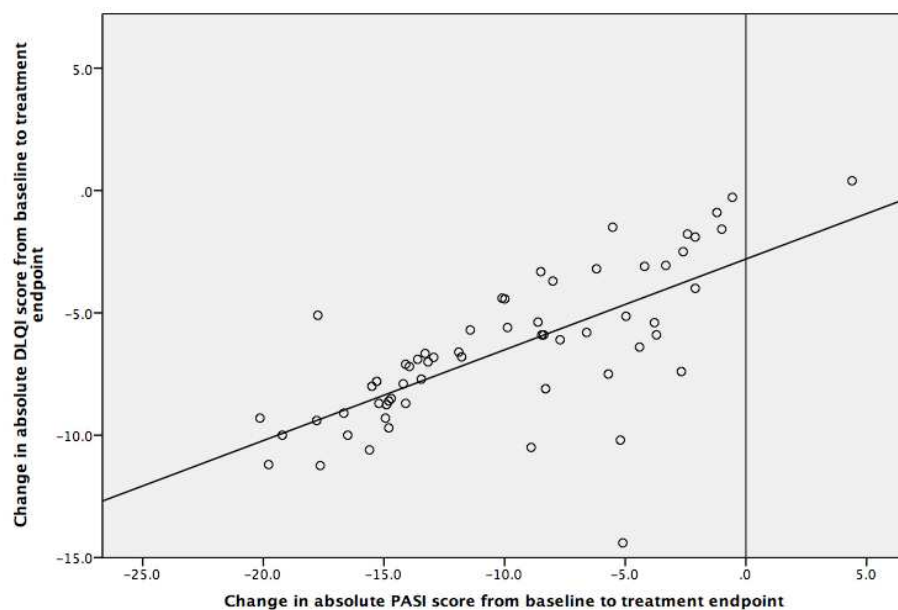


Figure 3(a)

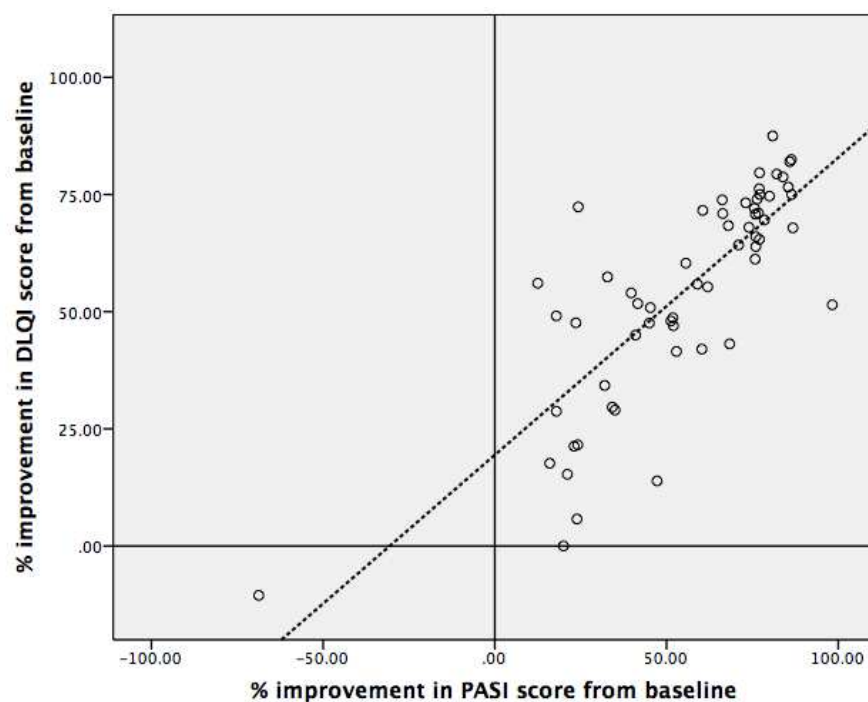


Figure 3(b)

Figure 3. Correlation of (a) absolute change in DLQI scores with absolute change in PASI scores ($R^2 = 0.494$) (b) percentage improvement in DLQI scores with percentage improvement in PASI scores ($R^2 = 0.641$)

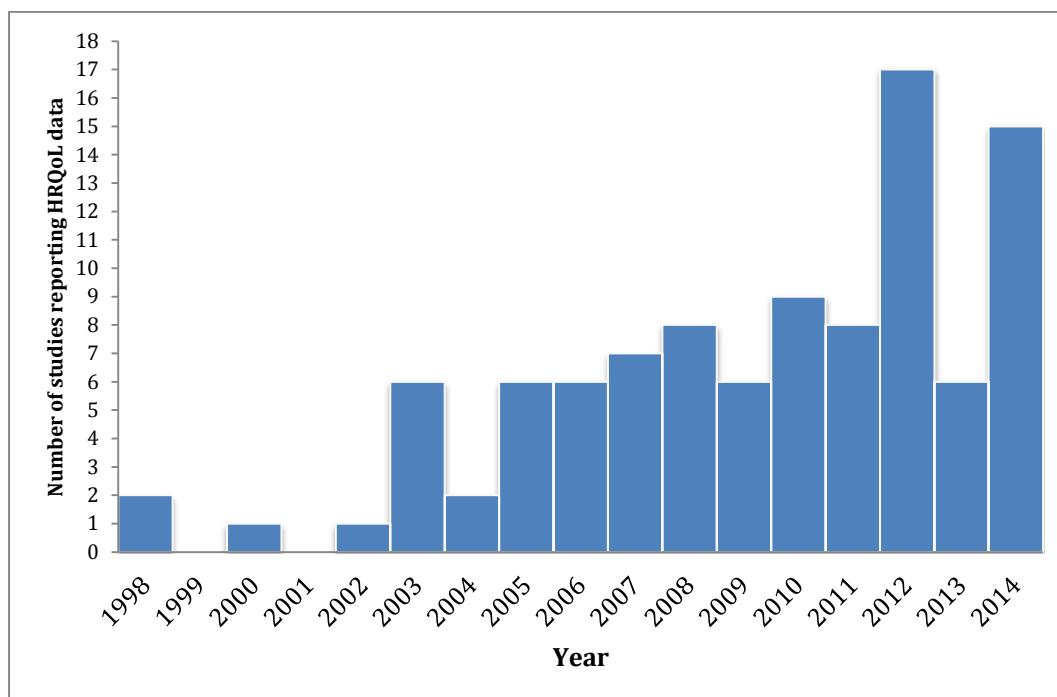


Figure 4. Increasing use of QoL instruments in included psoriasis studies since 1998 (n=100)

Example search strategy

Medline OVID search strategy

- 1.psoriasis.mp.orexpPsoriasis/
- 2.psoria*.mp.
- 3.erythrodermicpsoriasis.mp.
- 4.guttatepsoriasis.mp.
- 5.pustularpsoriasis.mp.
- 6.palmoplantarpsoriasis.mp.
- 7.psoriasisvulgaris.mp.
- 8.plaquepsoriasis.mp.
- 9.localisedpustularpsoriasis.mp.
- 10.localizedpustularpsoriasis.mp.
- 11.inversepsoriasis.mp.
- 12.scalpppsoriasis.mp.
- 13.nailpsoriasis.mp.
- 14.inflammatorypsoriasis.mp.
- 15.or/1-14
- 16.intervention*.mp.
- 17.treatment*.mp.
- 18.topical.mp.
- 19.systemic.mp.
- 20.immunosuppressivedrug.mp.
- 21.ImmunosuppressiveAgents/
- 22.NonprescriptionDrugs/
- 23.over-the-counter.mp.
- 24.otc.mp.
- 25.expTars/
- 26.(tarortars).tw.
- 27.expSteroids/
- 28.expRetinoids/
- 29.retinoid*.tw.

- 30.steroid*.tw.
- 31.expemollientagent/
- 32.emollient*.tw.
- 33.expTacrolimus/
- 34.tacrolimus.tw.
- 35.topicalimmunemodulator*.tw.
- 36.(topicaladj3therap*).tw.
- 37.(topicaladj3treatment*).tw.
- 38.(topicaladj3agent*).tw.
- 39.vitaminDanalogues.mp.
- 40.calcipotriol.mp.
- 41.dovonex.tw.
- 42.dovobet.tw.
- 43.xamiol.tw.
- 44.calcipotriene.mp.
- 45.taclonex.tw.
- 46.Calcitriol/orcalcitriol.mp.
- 47.silkis.tw.
- 48.tacalcitol.mp.
- 49.curatoderm.tw.
- 50.vitaminD.tw.
- 51.tars.mp.orTars/
- 52.(calamineandcoaltarointment).mp.
- 53.coaltar.mp.
- 54.calamine.mp.
- 55.(coaltarandsalicylicacidointment).mp.
- 56.coaltarpaste.mp.
- 57.(zincandcoaltarpaste).mp.
- 58.zincoxide.mp.
- 59.alphosyl.mp.
- 60.crudecoaltar.mp.
- 61.dithranol.mp.
- 62.anthralin.mp.orAnthralin/

- 63.dithrocream.tw.
- 64.micanol.tw.
- 65.psorin.tw.
- 66.zithranol.tw.
- 67.topicalretinoids.mp.
- 68.tazarotene.mp.
- 69.zorac.tw.
- 70.tazorac.tw.
- 71.corticosteroid.mp.
- 72.hydrocortisone.mp.orHydrocortisone/
- 73.dioderm.tw.
- 74.mildison.tw.
- 75.alphaderm.tw.
- 76.calmuridHC.tw.
- 77.eurax-hydrocortisone.tw.
- 78.canestenHC.tw.
- 79.daktacort.tw.
- 80.fucidinH.tw.
- 81.nystaform-HC.tw.
- 82.timodine.tw.
- 83.hydrocortisonebutyrate.mp.
- 84.locoid.tw.
- 85.locoidcrelo.tw.
- 86.alclometasonedipropionate.mp.
- 87.modrasone.tw.
- 88.betamethasoneesters.mp.
- 89.betamethasonevalerate.tw.
- 90.betacap.tw.
- 91.betesil.tw.
- 92.betnovate.tw.
- 93.betnovate-rd.tw.
- 94.bettamousse.tw.
- 95.diprosone.tw.

- 96.diprosalic.tw.
- 97.betnovate-c.tw.
- 98.betnovate-n.tw.
- 99.fucibet.tw.
- 100.lotriderm.tw.
- 101.clobetasolpropionate.mp.
- 102.clarelux.tw.
- 103.dermovate.tw.
- 104.etrivex.tw.
- 105.dermovate-nn.tw.
- 106.clobetasonebutyrate.mp.
- 107.eumovate.tw.
- 108.diffucortolonevalerate.mp.
- 109.nerisone.tw.
- 110.nerisoneforte.tw.
- 111.fludroxycortide.mp.
- 112.flurandrenolone.tw.
- 113.haelan.tw.
- 114.fluocinoloneacetoneide.mp.orFluocinoloneAcetoneide/
- 115.synalar1in4dilution.tw.
- 116.synalar1in10dilution.tw.
- 117.synalarc.tw.
- 118.synalarn.tw.
- 119.fluocinonide.mp.orFluocinonide/
- 120.metosyn.tw.
- 121.fluocortolone.mp.orFluocortolone/
- 122.ultralanumplain.tw.
- 123.fluticasonepropionate.mp.
- 124.cutivate.tw.
- 125.mometasonefuroate.mp.
- 126.elocon.tw.
- 127.triamcinoloneacetoneide.mp.orTriamcinoloneAcetoneide/
- 128.aureocort.tw.

- 129.KeratolyticAgents/orkeratolytic.mp.
- 130.salicylicacid.mp.orSalicylicAcid/
- 131.zinc.mp.andsalicylicacidpaste.tw.
- 132.Sulfur/orsulphur.mp.
- 133.expUltravioletRays/
- 134.expUltravioletTherapy/
- 135.ultraviolet*.tw.
- 136.(uvorUVBorUVA).tw.
- 137.phototherapy.mp.orPhototherapy/
- 138.ultravioletb.mp.
- 139.UVB.mp.
- 140.narrowbandUVB.mp.
- 141.narrow-bandUVB.mp.
- 142.narrowbandUVBtherapy.mp.
- 143.broadbandlighttherapy.mp.
- 144.ultravioletlight.mp.
- 145.UVlight.mp.
- 146.naturallight.mp.
- 147.combinationlighttherapy.mp.
- 148.photochemotherapy.mp.orPhotochemotherapy/
- 149.psoralen.mp.
- 150.PUVA.mp.
- 151.oralretinoids.mp.
- 152.acitretin.mp.orAcitretin/
- 153.neotigason.tw.
- 154.cyclosporin.mp.orCyclosporine/
- 155.ciclosporin.mp.
- 156.deximmune.tw.
- 157.neoral.tw.
- 158.sandimmune.tw.
- 159.hydroxycarbamide.mp.
- 160.hydrea.tw.
- 161.hydroxyurea.mp.orHydroxyurea/

- 162.methotrexate.mp.orMethotrexate/
- 163.metoject.tw.
- 164.cytokinemodulators.mp.
- 165.etanercept.mp.
- 166.enbrel.tw.
- 167.adalimumab.mp.
- 168.humira.tw.
- 169.infliximab.mp.
- 170.remicade.tw.
- 171.ustekinumab.mp.
- 172.stelara.tw.
- 173.efalizumab.mp.
- 174.raptiva.tw.
- 175.biologic*.mp.
- 176.Psychotherapy/
- 177.(psycho*adj3therap*).tw.
- 178.psychotherap*.tw.
- 179.expCognitiveTherapy/
- 180.(cognit*adj3therap*).tw.
- 181.((behaviourorbehavior)adj3therap*).tw.
- 182.psyoeducation.tw.
- 183.CBT.tw.
- 184.expPeerGroup/
- 185.expSelf-HelpGroups/
- 186.(peeradj3group*).tw.
- 187.((supportorself-helporselfhelp)adj3group*).tw.
- 188.alternativetherapy.mp.
- 189.homeopathy.mp.orHomeopathy/
- 190.Relaxation/orrelaxation.mp.
- 191.oreganooil.mp.
- 192.traditionaltreatment*.mp.
- 193.oatextracts.mp.
- 194.coldwaterfishoils.mp.

- 195.eveningprimroseoil.mp.
- 196.teatreeoil.mp.or"TeaTreeOil"/
- 197.aloevera.mp.orAloe/
- 198.taichi.mp.
- 199.yoga.mp.orYoga/
- 200.laser.mp.
- 201.herbalmedication.mp.
- 202.petroileumjelly.mp.
- 203.massage*.mp.
- 204.sharkcartilageextract.mp.
- 205.meditation.mp.orMeditation/
- 206.complementarytherapy.mp.orComplementaryTherapies/
- 207.hypnotherapy.mp.
- 208.milkthistle.mp.orMilkThistle/
- 209.expMotorActivity/
- 210.(physicaladj3activit\$).tw.
- 211.expExercise/
- 212.expExerciseTherapy/
- 213.exercis\$.tw.
- 214.expLifeStyle/
- 215.lifestyle\$.tw.
- 216.(lifeadj3style\$).tw.
- 217.expHealthBehavior/
- 218.(healthadj3(behavior\$orbehaviour\$)).tw.
- 219.expDiet/
- 220.expDietarySupplements/
- 221.diet\$.tw.
- 222.nutrition\$.tw.
- 223.expObesity/
- 224.expBodyWeight/
- 225.obes\$.tw.
- 226.weight\$.tw.
- 227.expSmoking/

- 228.(smokingorsmoker*).tw.
- 229.expAlcohol-RelatedDisorders/
- 230.expAlcoholicBeverages/
- 231.alcohol*.tw.
- 232.drinking.tw.
- 233.expEmployment/
- 234.expOccupations/
- 235.(employment*oroccupation*orwork).tw.
- 236.goeckermantherapy.mp.
- 237.excimertherapy.mp.
- 238.scalelifters.mp.
- 239.non-biologicalmedications.mp.
- 240.FishOils/orfishoil*.mp.
- 241.vitamins.mp.orVitamins/
- 242.vitaminE.mp.orVitaminE/
- 243.VitaminA/orvitaminA.mp.
- 244.mineral*.mp.
- 245.selenium.mp.orSelenium/
- 246.Antimetabolites/orantimetabolite*.mp.
- 247.thioguanine.mp.orThioguanine/
- 248.tioguanine.mp.
- 249.miscellaneous.mp.
- 250.immunomodulatoragents.mp.
- 251.immunomodulatordrugs.mp.
- 252.calcineurininhibitors.mp.
- 253.anti-itch.mp.
- 254.e45cream.mp.
- 255.fumaricacidesters.mp.
- 256.fumaricacidesters.mp.
- 257.FAE.mp.
- 258.sorbelene.mp.
- 259.anti-fungal.mp.
- 260.skinbiopsy.mp.

261.alefacept.mp.
262.amevive.tw.
263.or/16-262
264.QOL.mp.
265.qualityoflife.mp.or"QualityofLife"/
266.healthrelatedqualityoflife.mp.
267.HRQOL.mp.
268.EQ5D.mp.
269.nationalpsoriasisfoundation.mp.
270.skindex.mp.
271.DLQI.mp.
272.dermatologylifequalityindex.mp.
273.burdenofskindisease.mp.
274.patientreportedoutcomemeasure.mp.
275.qualityoflifeimpairment.mp.
276.outcomemeasurement.mp.
277."OutcomeAssessment(HealthCare)"/oroutcomeassessment.mp.
278.QOLtools.mp.
279.patientreportedoutcome.mp.
280.PRO.mp.
281.NHP.mp.
282.WHO-QOL.mp.
283.psoriasisdisabilityindex.mp.
284.PDI.mp.
285.salfordpsoriasisindex.mp.
286.SPI.mp.
287.FDLQI.mp.
288.PFI.mp.
289.skindex-16.mp.
290.skindex-29.mp.
291.skindex-teen.mp.
292.childrensdermatologylifequalityindex.mp.
293.CDLQI.mp.

294.familydermatologylifequalityindex.mp.
295.psoriasis-specificmeasureofqualityoflife.mp.
296.PSORIQoL.mp.
297.USPSORIQoL.mp.
298.skindex-17.mp.
299.DQOLS.mp.
300.dermatologyqualityoflifescals.mp.
301.shortform-36.mp.
302.KMPI.mp.
303.PDI.mp.
304.nationalpsoriasisfoundationpsoriasisscore.mp.
305.NPF-PS.mp.
306.physicianstaticglobalassessment.mp.
307.PSGA.mp.
308.overalllesionassessment.mp.
309.OLA.mp.
310.physiciandynamicglobalassessment.mp.
311.physiciandynamicglobalassessment.mp.
312.PDGA.mp.
313.latticesystemglobalpsoriasisscore.mp.
314.LS-GPS.mp.
315.PsAQoL.mp.
316.dermatologyindexofdiseaseseverity.mp.
317.DIDS.mp.
318.psoriasislifestressinventory.mp.
319.PLSI.mp.
320.WHOQOL-26.mp.
321.WHOQOL-100.mp.
322.patientgeneralindex.mp.
323.PGI.mp.
324.DIELH.mp.
325.VQ-dermato.mp.
326.impactofchronicskindiseaseondailylife.mp.

- 327.ISDL.mp.
- 328.freiberglifequalityassessment.mp.
- 329.FLQA.mp.
- 330.SF-29.mp.
- 331.valueoflife/
- 332.qualityadjustedlifeyear/
- 333.qualityadjustedlife.tw.
- 334.(qaly\$orqald\$orqale\$orqtime\$).tw.
- 335.disabilityadjustedlife.tw.
- 336.daly\$.tw.
- 337.healthstatusindicators/
- 338.(sf36orsf36orshortform36orshortform36orsfthirtysixorsfthirtysixorshortformthirtysixorshortformthirtysixorshortformthirtysixorshortformthirtysix).tw.
- 339.(sf6orsf6orshortform6orshortform6orsfsixorsfsixorshortformsixorshortformsix).tw.
- 340.(sf12orsf12orshortform12orshortform12orsftwelveorsftwelveorshortformtwelveorshortformtwelve).tw.
- 341.(sf16orsf16orshortform16orshortform16orsfsixteenorsfsixteenorshortformsixteenorshortformsixteen).tw.
- 342.(sf20orsf20orshortform20orshortform20orsftwentyorsftwentyorshortformtwentyorshortformtwenty).tw.
- 343.(euroqoloreuroqoloreq5doreq5d).tw.
- 344.(hqlorhqolorhqolorhrqolorhrqol).tw.
- 345.(hyeorhyes).tw.
- 346.health\$year\$equivalent\$.tw.
- 347.healthutilit\$.tw.
- 348.(huiorhui1orhui2orhui3).tw.
- 349.disutili\$.tw.
- 350.rosser.tw.
- 351.qualityofwellbeing.tw.
- 352.qwb.tw.
- 353.willingnesstopay.tw.
- 354.standardgamble\$.tw.

355.timetradeoff.tw.
 356.timetradeoff.tw.
 357.tto.tw.
 358.or/264-357
 359.RandomizedControlledTrialsasTopic/
 360.Randomi?edcontrolledtrial/
 361.RandomAllocation/
 362.DoubleBlindMethod/
 363.SingleBlindMethod/
 364.clinicaltrial/
 365.clinicaltrial,phasei.pt.
 366.clinicaltrial,phaseii.pt.
 367.clinicaltrial,phaseiii.pt.
 368.clinicaltrial,phaseiv.pt.
 369.controlledclinicaltrial.pt.
 370.randomi?edcontrolledtrial.pt.
 371.multicenterstudy.pt.
 372.clinicaltrial.pt.
 373.expClinicalTrialsastopic/
 374.randomly.ab.
 375.trial.ab.
 376.groups.ab.
 377.or/359-376
 378.(clinicaladjtrial\$).tw.
 379.((singl\$ordoubl\$ortreb\$ortripl\$)adj(blind\$3ormask\$3)).tw.
 380.PLACEBOS/
 381.placebo\$.tw.
 382.randomlyallocated.tw.
 383.(allocatedadj2random\$).tw.
 384.or/378-383
 385.377or384
 386.casereport.tw.
 387.letter/

388.historicalarticle/

389.or/386-388

390.385not389

391.15and263and358and390

